FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	86	106

1. GENERAL SPECIFICATIONS: HAWAII DEPARTMENT OF TRANSPORTATION, STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1985, TOGETHER WITH SPECIAL PROVISIONS PREPARED FOR THIS CONTRACT.
2. DESIGN SPECIFICATIONS: A.A.S.H.T.O. 1983 STANDARD SPECIFICATIONS FOR HIGHWAYS BRIDGES AND ITS SUBSEQUENT INTERIM SPECIFICATIONS. GUIDE SPECIFICATION FOR SEISMIC DESIGN FOR HIGHWAY BRIDGES 1983.
3. LOADS:
   (A) DEAD LOAD: AN ALLOWANCE OF 20 P.S.F. FOR FUTURF WEARING SURFACE OF ASPHALT CONCRETE HAS BEEN PROVIDED FOR IN THE DESIGN.
   (B) LIVE LOAD: HS20-44 OR INTERSTATE LOADING.
4. MATERIALS:
   (A) ALL CONCRETE SHALL BE CLASS A UNLESS OTHERWISE NOTED. SEE NOTES ON APPROPRIATE SHEETS.
   (B) ALL REINFORCING STEEL SHALL BE A.S.T.M. A615, GRADE 40 UNLESS OTHERWISE NOTED.
   (C) ALL STRUCTURAL STEEL SHALL BE A.S.T.M. A-36 HOT DIP GALVANIZED AFTER FABRICATION, UNLESS OTHERWISE NOTED.
   (D) ALL ANCHOR BOLTS, WASHERS AND NUTS SHALL BE A.S.T.M. A-307, HOT DIP GALVANIZED AFTER FABRICATION, UNLESS OTHERWISE SPECIFIED.
   (E) FOR MATERIALS OF PRESTRESSED CONCRETE BEAMS & PILES SEE APPLICABLE PRESTRESSED CONCRETE NOTES.
5. DESIGN STRESSES: SHALL FOLLOW A.A.S.H.T.O. STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES IN ADDITION TO THOSE LISTED BELOW.

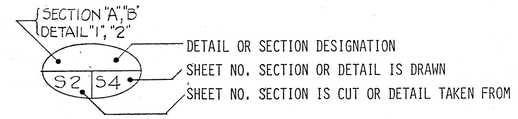
CONCRETE	CLASS A	CLASS BD	ALL OTHERS (EXCEPT PRESTRESSED CONCRETE BEAMS AND UNLESS OTHERWISE NOTED ON THE PLANS)
F'C	3,000 P.S.I.	3,750 P.S.I.	5,000 P.S.I.
FC	1,200 P.S.I.	1,200 P.S.I.	2,000 P.S.I.
N	9	9	7

FOR PRESTRESSED CONCRETE BEAMS, SEE PRESTRESSED CONCRETE NOTES.

6. REINFORCEMENT:
   (A) THE MINIMUM COVERING MEASURED FROM THE SURFACE OF THE CONCRETE TO THE FACE OF ANY REINFORCING BARS SHALL BE AS FOLLOWS:
      (1) DECK SLABS (FOR BOX GIRDERS, T-BEAMS, PRESTRESSED BEAMS)
         A. TOP BARS = 1-1/2"
         B. BOTTOM BARS = 1-1/4"
      (2) BOX GIRDERS
         A. 1-1/4" TO STIRRUP FROM OUTSIDE FACES
         B. 1" TO STIRRUP FROM INSIDE FACES.
         C. INSIDE FACE BOTTOM SLAB AND WALLS = 1-1/2"
      (3) FOR PRESTRESSED CONCRETE BEAMS SEE PRESTRESSED CONCRETE BEAM DETAILS.
      (4) ABUTMENTS, PIERS AND RETAINING WALLS = 2".
      (5) COLUMNS = 2" TO TIES.
      (6) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH = 3".
   (B) REINFORCING BARS SHALL BE DETAILED IN ACCORDANCE WITH A.C.I. MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE HIGHWAY STRUCTURES UNLESS OTHERWISE NOTED.
   (C) MINIMUM CLEAR SPACING BETWEEN PARALLEL BARS SHALL BE 1-1/2 TIMES THE DIAMETER OF BARS (FOR NON BUNDLED BARS), BUT IN NO CASE SHALL THE CLEAR DISTANCE BETWEEN THE BARS BE LESS THAN 1-1/2 TIMES THE MAXIMUM SIZE OF THE COARSE AGGREGATE.
   (D) ALL DIMENSIONS RELATING TO REINFORCING BARS (E.G. SPACING OF BARS, ETC.,) ARE TO CENTERS OF BARS UNLESS OTHERWISE NOTED.
   (E) REINFORCING BARS SHALL BE SECURELY TIED AT ALL INTERSECTIONS AND LAP SPLICES EXCEPT WHERE THE SPACING OF INTERSECTIONS IS LESS THAN ONE FOOT IN EACH DIRECTION, IN WHICH CASE ALTERNATE INTERSECTIONS SHALL BE TIED.
   (F) VERTICAL COLUMN BARS SHALL BE ARRANGED IN SUCH A MANNER AS TO AVOID INTERFERENCE WITH PIER CAP BARS ABOVE AS DIRECTED BY THE ENGINEER.
7. GIRDER BEARINGS:
   (A) CONCRETE SEAT FOR GIRDER: BEARING AREA DEVIATION FROM PLANE SHALL NOT EXCEED 1/16-INCH. THE SEAT SHALL BE CONSTRUCTED HIGHER THAN SHOWN ON PLANS AND SHALL THEN BE GROUND DOWN TO THE REQUIRED ELEVATION. SEAT SHALL BE MONOLITHIC WITH STRUCTURE.
   (B) ELASTOMERIC PADS: BOTTOM OF BRIDGE BEARING PADS SHALL BE SECURED TO THE CONCRETE SEATS, TO PREVENT DISPLACEMENT, WITH ADHESIVES APPROVED BY THE ENGINEER.
8. CONSTRUCTION METHODS:
   (A) SEE STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.
   (B) IN GENERAL TOP OF CONCRETE DECK SLAB SHALL BE CONSTRUCTED TO FOLLOW THE ROADWAY VERTICAL AND HORIZONTAL CURVES.
   (C) SPREAD FOOTINGS SHALL BE EXCAVATED AND POURED NEAT AGAINST UNDISTURBED GROUND. IN CASE OF OVER EXCAVATION, SPACE BETWEEN FOOTING AND GROUND SHALL BE FILLED WITH CONCRETE AT THE CONTRACTOR'S EXPENSE AND AS DIRECTED BY THE ENGINEER. THE MINIMUM QUALITY OF THE FILL CONCRETE SHALL BE CLASS D.
   (D) EXCEPT AS OTHERWISE NOTED, ALL VERTICAL DIMENSIONS ARE MEASURED PLUMB.
9. GENERAL:
   (A) ALL ITEMS NOTED INCIDENTAL WILL NOT BE PAID FOR SEPARATELY.
   (B) THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITY LINES AND NOTIFY THE RESPECTIVE OWNERS BEFORE COMMENCING THE WORK OF EXCAVATION OR THE DRIVING OF PILES, INCLUDING ANY TEMPORARY PILING OR SHEETING.
   (C) FOR CONCRETE FINISH SEE STANDARD SPECIFICATIONS.
   (D) CONSTRUCTION JOINTS MAY BE RELOCATED OR ADDITIONAL ONES ADDED SUBJECT TO THE APPROVAL OF THE ENGINEER.
   (E) UNLESS OTHERWISE NOTED, ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4" X 3/4".
   (F) STANDARD DETAIL DRAWINGS REFER TO ALL STRUCTURES IN GENERAL, EXCEPT FOR MODIFICATIONS AS MAY BE REQUIRED FOR SPECIAL CONDITIONS. FOR SUCH MODIFICATIONS REFER TO THE CORRESPONDING DETAILED DRAWINGS.
   (G) FOR ELECTRICAL CONDUIT LOCATION DETAILS SEE ELECTRICAL DRAWINGS.
10. FOUNDATION:
   (A) DESIGN LOAD FOR PILES = 100 TONS TYPICAL, 50 TONS AT PIERS 12, 13 & 14
   (B) ALLOWABLE HORIZONTAL LOAD ON PILES = 7 KIPS.
   (C) ALLOWABLE SOIL BEARING PRESSURE AT SPREAD FOOTINGS = 5000 P.S.F. (AT PIER #11)
   (D) FOR BORING LOGS AND THEIR LOCATIONS SEE SHEET NOS. P1 THRU P4.
   (E) THE PILE TIP ELEVATIONS SHOWN ON THE PLANS ARE BASED ON BORING DATA.
   (F) IN DRIVING EACH GROUP OF PILES, THE CONTRACTOR SHALL START FROM CENTER OF THE GROUP AND PROCEED OUTWARDS, EXCEPT FOR TEST PILES AND LOAD TEST PILES.
   (G) THE CONTRACTOR SHALL VERIFY THE TYPE OF SURFACE SOIL BEFORE STARTING TO DRIVE ANY PILE.
11. REFERENCES:
   (A) FOR PRESTRESSED CONCRETE NOTES, SEE DRAWINGS FQR PRESTRESSED BEAM DETAILS.
   (B) FOR ADDITIONAL PILE NOTES, SEE DRAWINGS NO. T3 THRU T6.

12. SYMBOLS AND ABBREVIATIONS:

ALT.	ALTERNATE	H.W.L.	HIGH WATER LINE
AZ.	AZIMUTH	I.F.	INSIDE FACE
(B), B, BOT.	BOTTOM	INV.	INVERT
BAL.	BALANCE	JT.	JOINT
B.F.	BOTH FACES	MIN.	MINIMUM
℄	BASELINE	N.F.	NEAR FACE
BM.	BEAM	N.I.C.	NOT IN CONTRACT
BRG.	BEARING	N.T.S.	NOT TO SCALE
BTWN.	BETWEEN	O.C.	ON CENTERS
C.I.P.	CAST IRON PIPE	O/S	OFFSET
C.J.	CONSTRUCTION JOINT	℗	PLATE
℄	CENTERLINE	R	RADIUS
CL., CLR.	CLEAR	REINF.	REINFORCING
CONT.	CONTINUOUS	SHT.	SHEET
DIA., ϕ	DIAMETER	SPCG., SP.	SPACING
(E), (EXP.)	EXPANSION	STA.	STATION
E.F.	EACH FACE	STIRR.	STIRRUP
EL., ELEV.	ELEVATION	STR.	STRAIGHT OR STRINGER
E.P.	EDGE OF PAVEMENT	SYMM.	SYMMETRY, SYMMETRICAL
EQ.	EQUAL	(T), T.	TOP
E.W.	EACH WAY	T.O.D.	TOP OF DECK
F.F.	FAR FACE	TYP.	TYPICAL
FIN. GR.	FINISHED GRADE	W.P.	WORKING POINT, WATERPROOFING
(H)	HINGE	@	AT
		N	MODULAR RATIO



ORIGINAL PLAN | NOTE BOOK No. | SURVEY PLOTTED BY / DRAWN BY / TRACED BY / DESIGNED BY / QUANTITIES BY / CHECKED BY / DATE

SSFM ENGINEERS INC.
501 Sumner St., #502
Honolulu, Hawaii 96817

HOWARD Y. FUKUDA REGISTERED PROFESSIONAL ENGINEER No. 1343-S HAWAII, U.S.A.

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Howard Y. Fukuda

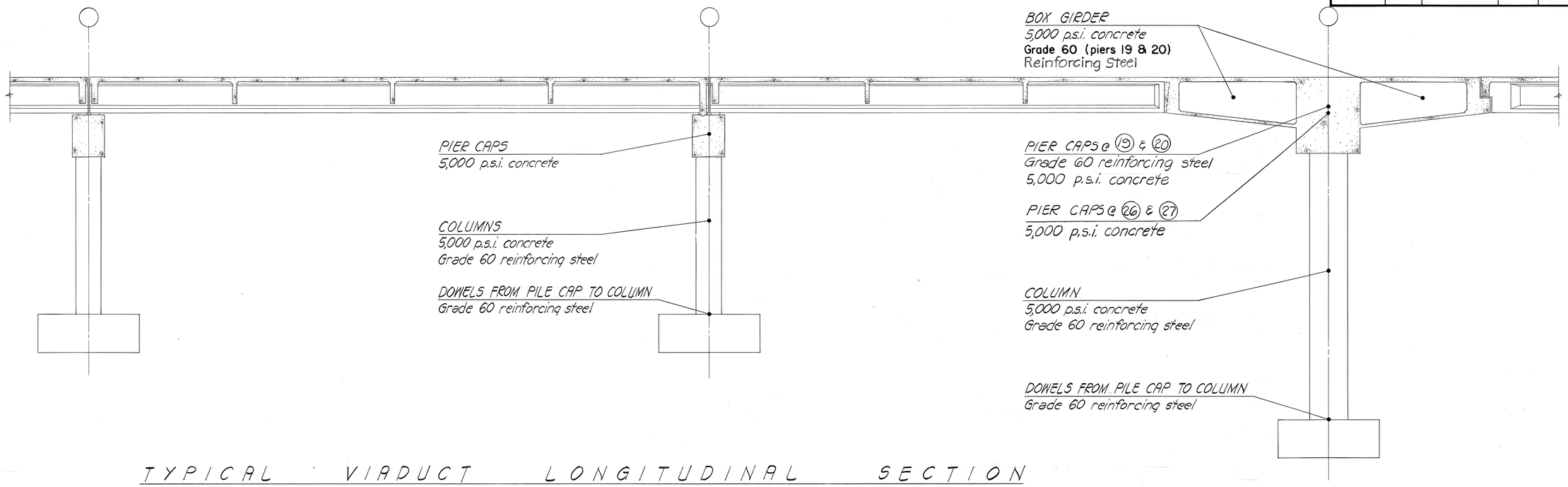
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)
DATE:

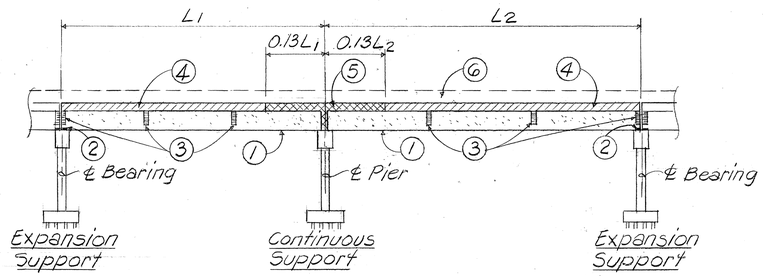
SHEET No. 71 OF 21 SHEETS

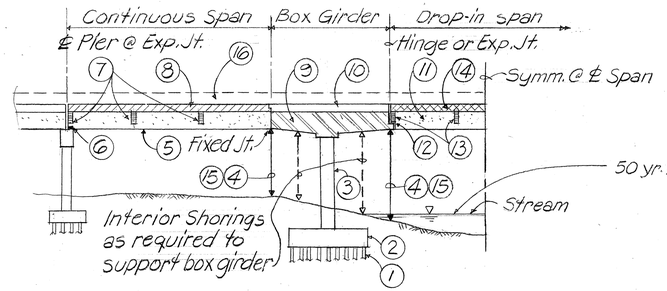
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	87	106

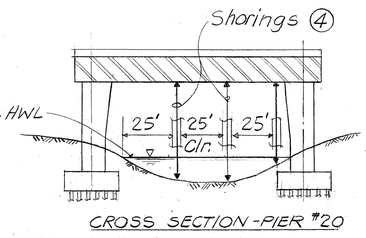


TYPICAL VIADUCT LONGITUDINAL SECTION

Not to scale (Showing cast-in-place concrete other than Classes A & BD & grade of reinforcing steel other than Grade 40.)







CROSS SECTION - PIER #20

SEQUENCE OF CONSTRUCTION FOR TWO SPAN CONTINUOUS PORTION OF VIADUCT

1. After constructing piers, install prestress girders. Girders to be supported at piers only.
2. Pour creep blocks at expansion supports.
3. Pour diaphragms (Beams "B" & "D") except at continuous support and cure for 7 days minimum.
4. Pour deck slab, and cure for 14 days minimum.
5. Pour beam "A" (diaphragm at continuous pier), balance of deck slab, and cure for 21 days minimum.
6. Pour railings.

SEQUENCE OF CONSTRUCTION FOR STREAM CROSSING PORTION OF VIADUCT

1. Drive piles
2. Pour pile cap
3. Pour columns
4. Install formworks and shorings for box girder
   - (a) Shorings at ends of box girder shall be designed to safely support a line load of 32.5 kips per foot at each end.
   - (b) Shorings in stream shall be safeguarded against undermining or destruction from stream action. Shorings for pier #20 shall spaced to allow for a minimum horizontal clearance of 25 feet within the 50 year High Water Line.
5. Install prestressed girders for exterior continuous spans. Support girders at pier and at box girder shorings only.
6. Pour creep block at expansion supports of continuous span
7. Pour diaphragms (beams "B" & "D") and cure for 7 days minimum.
8. Pour deck slab for continuous spans and cure for 7 days minimum.
9. Pour box girder pier cap, bottom slab and webs.
10. Pour top slab of box girder and cure for 7 days minimum.
11. Install prestressed girders for drop-in span.
12. Pour creep block at expansion support of drop-in span.
13. Pour diaphragms "D," "E" & "F" and cure for 7 days minimum.
14. Pour deck slab for drop-in span and cure for 21 days minimum.
15. Remove all shorings simultaneously.
16. Construct concrete railings.

ORIGINAL PLANS | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | NOTE BOOK | QUANTITIES BY | CHECKED BY | DATE | NO.

SSFM Engineers, Inc.
Consulting Structural Engineers
1210 "A" Kapiolani Blvd., Honolulu, HI 96814

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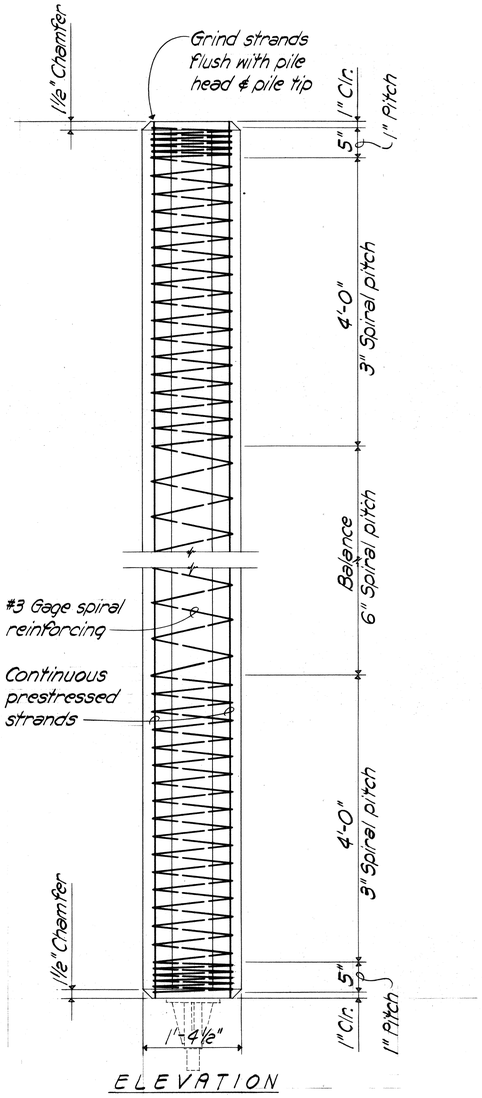
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPECIAL CONCRETE & REINF. & CONSTRUCTION SEQUENCE

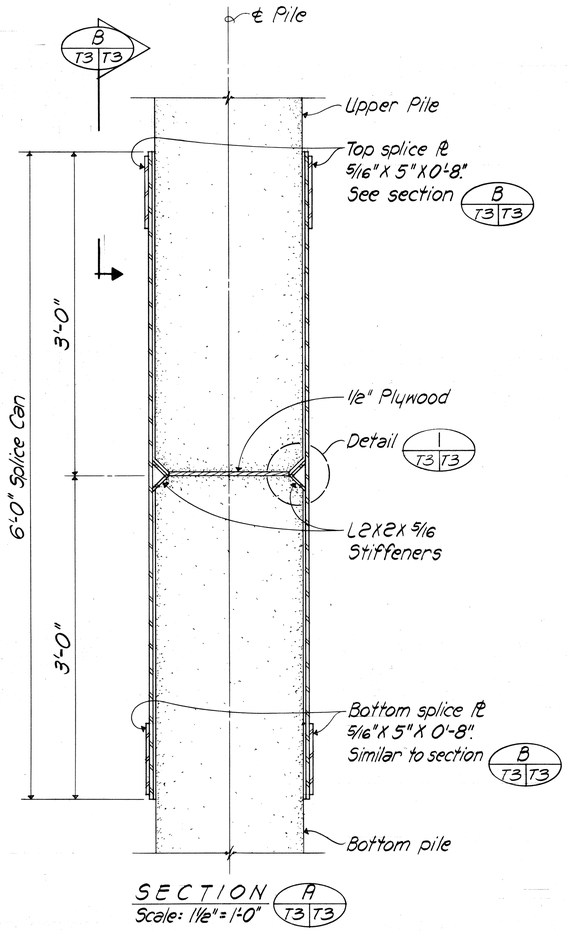
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)
SCALE: AS NOTED DATE:

SHEET No. 72 OF 21 SHEETS

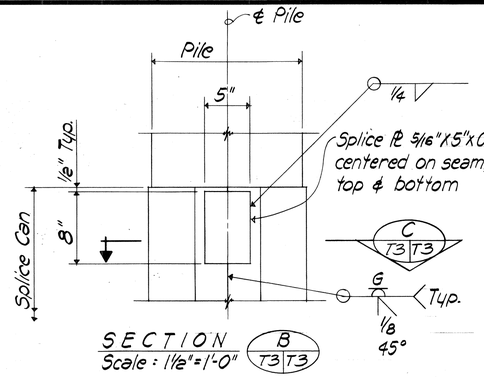
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	88	106



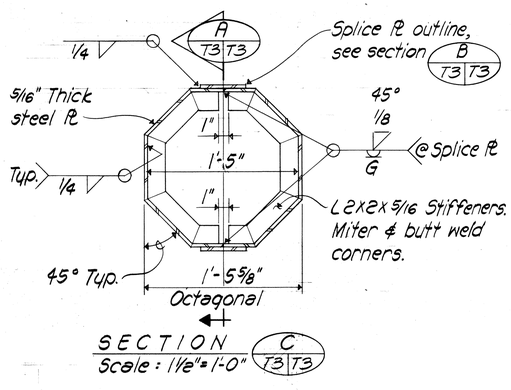
ELEVATION



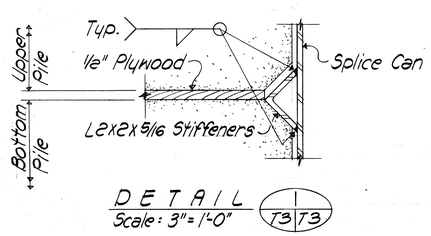
SECTION A T3 T3
Scale: 1½" = 1'-0"



SECTION B T3 T3
Scale: 1½" = 1'-0"



SECTION C T3 T3
Scale: 1½" = 1'-0"

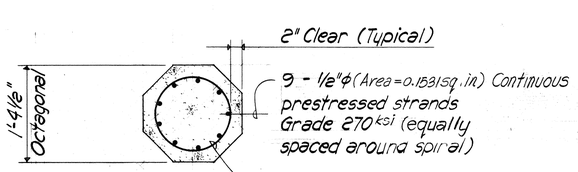


DETAIL 1 T3 T3
Scale: 3" = 1'-0"

TYPICAL PILE SPLICE DETAILS

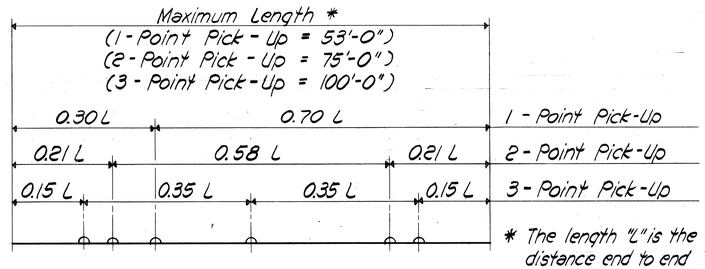
GENERAL NOTES:

1. Concrete strengths:
   a. Typical pile: 28 day compressive strength f'c = 6,000 p.s.i. Minimum strength before driving = 5,000 p.s.i.
   b. Pile build-up without driving; f'c = 5,000 p.s.i. unless noted otherwise.
2. Reinforcing steel shall conform to the following ASTM specifications:
   a. Bar reinforcement: ASTM A615 Grade 40
   b. Spiral reinforcement - ASTM A82
   c. Prestressing strand: ASTM A416 Grade 270
3. Splice can:
   a. Structural steel shall conform to ASTM A36
   b. All welding shall meet the requirements of Section 501 of the Standard Specification.
4. The minimum working force (after all losses) in the prestressing strands shall be 23.5 kips. per strand.
5. Piles accepted by the Engineer shall be of sound concrete. Damaged piles shall be replaced or repaired by the Contractor at his expense as directed by the Engineer.
6. Work of cutting off prestress concrete piles or concrete pile build-ups shall be preformed in such a manner as to avoid spalling or damaging the pile below cut-off. Damaged portions shall be removed and pile cut-off elevation lowered as required by the Engineer.
7. Top of pile at cut-off line shall be prepared as required for construction joints in Section 503 of the Standard Specifications.
8. Pile splice shall not be permitted except for pile length in excess of 100 feet unless otherwise approved by Engineer.
9. The use of fly ash shall not be permitted in prestressed concrete.



SECTION

TYPICAL PILE DETAIL
Not to scale



PILE PICK-UP POINTS
Not to scale

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Howard Y. Fukuda

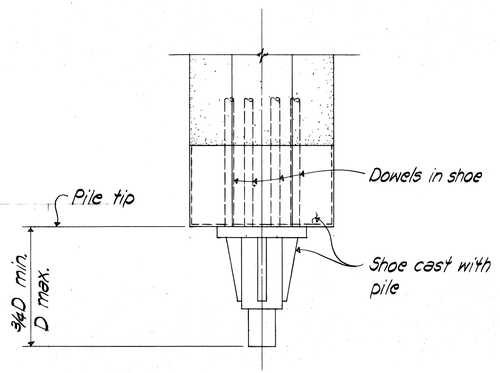
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PILE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)
SCALE: AS NOTED DATE:

SHEET NO. T3 OF 21 SHEETS

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE
NOTE BOOK
No.



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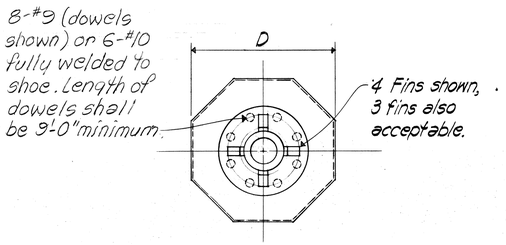


PLAN

PILE ROCK DRIVING SHOE DETAIL

Not to scale

TABLE OF PILE LOAD TESTS

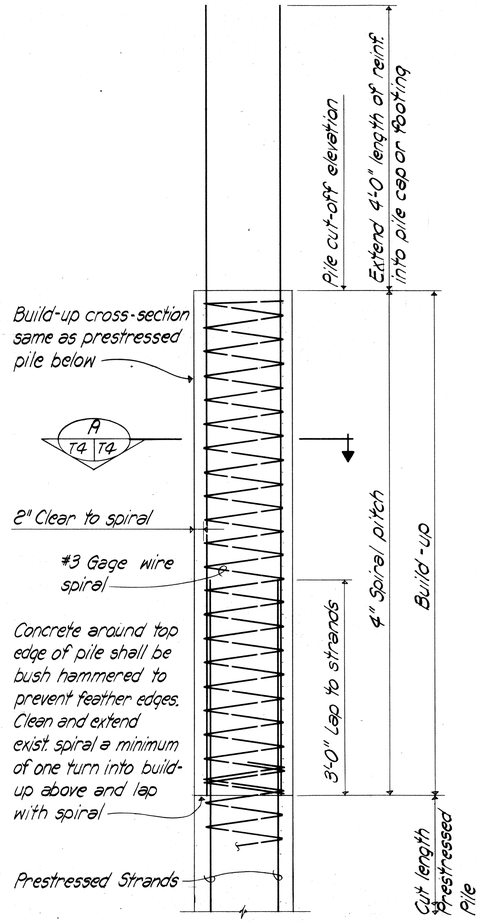
PILE LOAD TEST AT PIER NUMBER	DESIGN PILE CAPACITY (TONS)
⑫	50
⑮	100
⑱	100
㉒	100
㉗	100
Abut. # 2	100

Remarks:

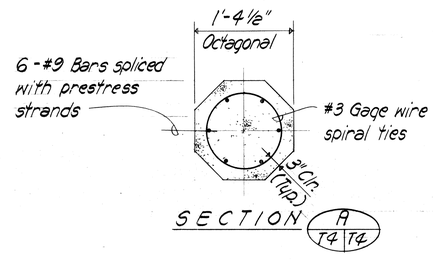
(1) Pile load tests shall be performed in accordance with a procedure specified by the Engineer.

(2) Contractor shall provide the amount of reaction load specified by the Engineer. The total reaction load shall not exceed 350 tons.

(3) Contractor shall allow one week (seven days) for the Engineer to complete each load test.



WITHOUT DRIVING ELEVATION

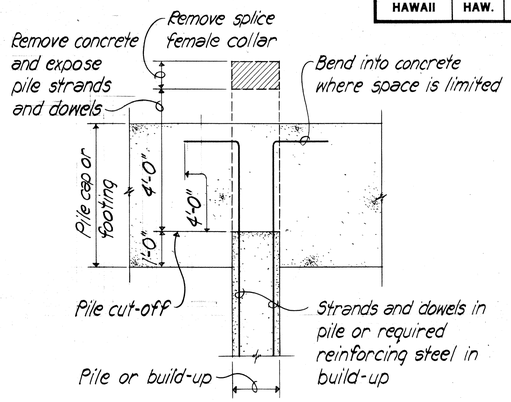


SECTION A T4 T4

TYPICAL PILE BUILD-UP DETAILS

Not to scale

NOTE:
Concrete in pile build-ups shall have a minimum 28 day compressive cylinder strength fc' = 5,000 p.s.i.



PILE REINFORCEMENT EXTENSION DETAIL

Scale: 1/2" = 1'-0"

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	89	106

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PILE DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)

SCALE: AS NOTED DATE:

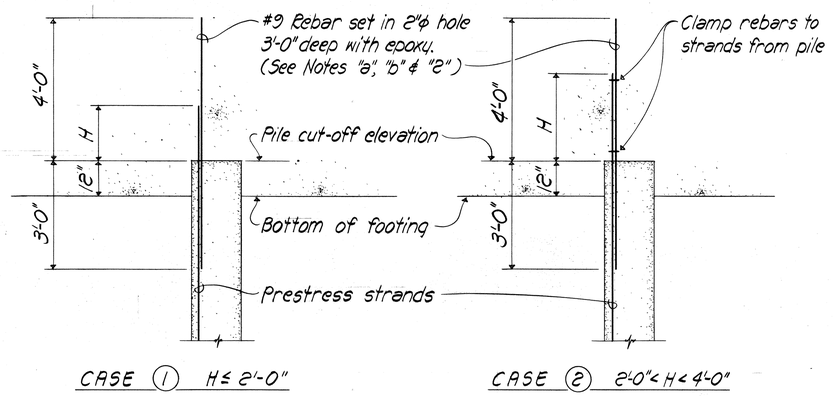
SHEET NO. 74 OF 21 SHEETS

DATE	REVISION
11/15/88	REVISED TABLE OF PILE LOAD TEST

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
NOTE BOOK
QUANTITIES BY
CHECKED BY
DATE
No.

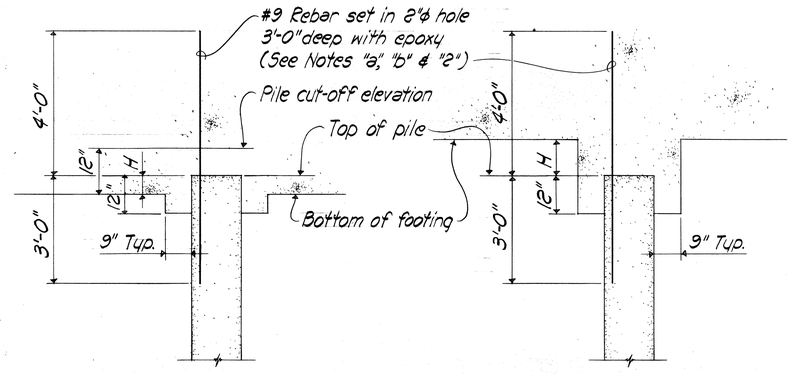
ADD. 89.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	90	106



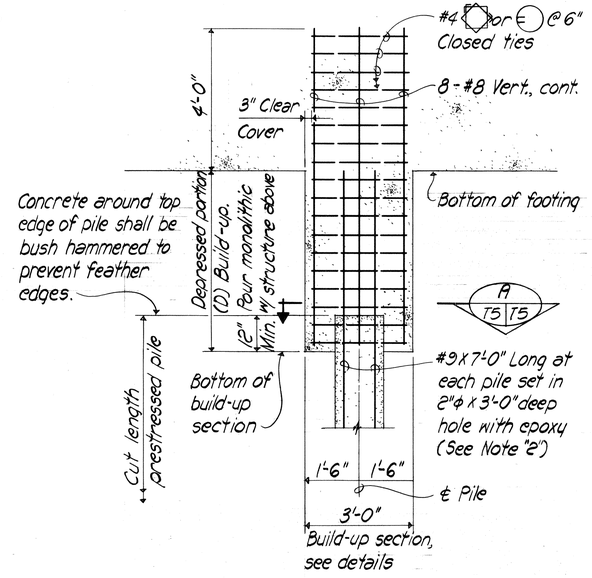
CASE (1) H≤ 2'-0"

CASE (2) 2'-0"< H< 4'-0"

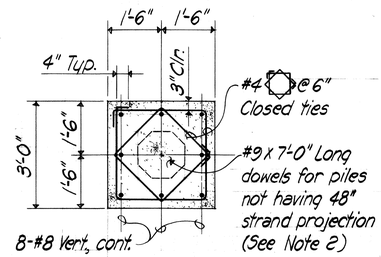


CASE (3) H< 12"
See Detail "X"

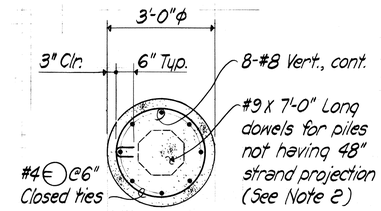
CASE (4) 0< H< 4'-0"
See Detail "X"



DETAIL "X"
(Without Driving)



Square Build-Up



Circular Build-Up

SECTION A T5 T5

NOTES:

a. The hole to receive dowel shall be clean, dry and not oily prior to application of epoxy.
b. The strength of epoxy shall be equal to or greater than that of pile concrete. The epoxy shall be non-shrink.

NOTES:

1. Selection of pile build-up shall be determined by the Engineer. When height of depressed portion of footing (D) exceeds 5'-0" this alternative pile build-up shall not be allowed.
2. Use same number of rebars (ASTM A615 Grade 60) as number of prestress strands.
3. Detail "X" shall be used only for piles already driven to desired tip elevation. Driving on pile build-ups shall not be permitted.
4. Concrete in Detail "X" shall be Class A, same strength as footing.
5. Top of existing pile shall be roughened to ¼" amplitude.
6. Circular section may be used instead of square section if approved by the Engineer.

ALTERNATIVE PILE BUILD-UP DETAILS
Not to scale

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
NOTE BOOK	TRACED BY	
	DESIGNED BY	
No.	QUANTITIES BY	
	CHECKED BY	

SSFM Engineers, Inc.
Consulting Structural Engineers
1210 Ward Ave., Honolulu, HI 96814

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Howard Y. Fukuda

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

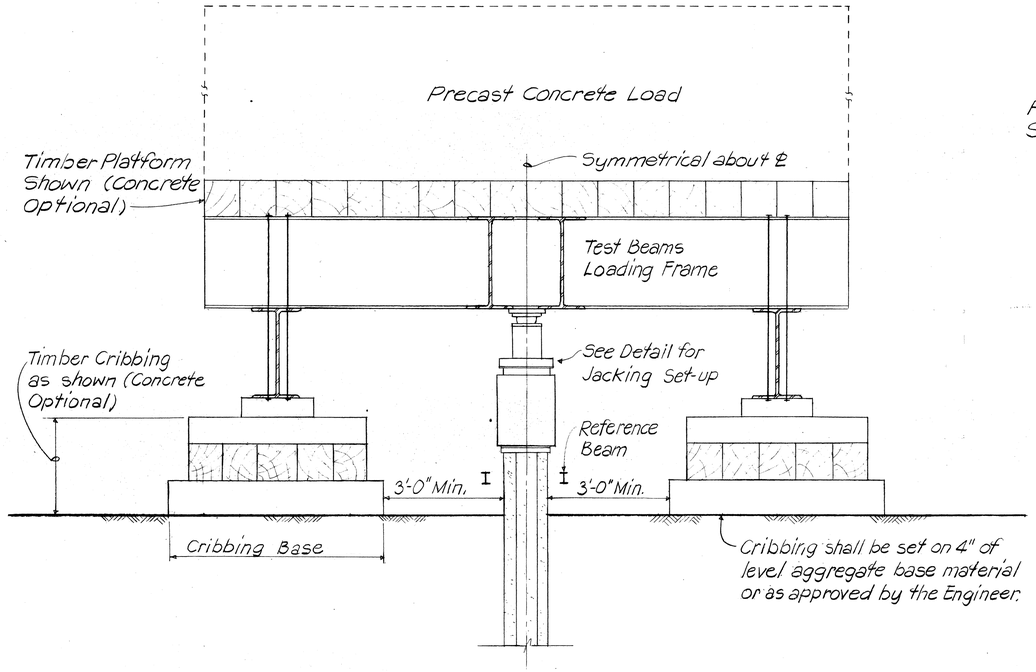
PILE BUILD-UP DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)

SCALE: AS NOTED DATE:

SHEET No. T5 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	91	106

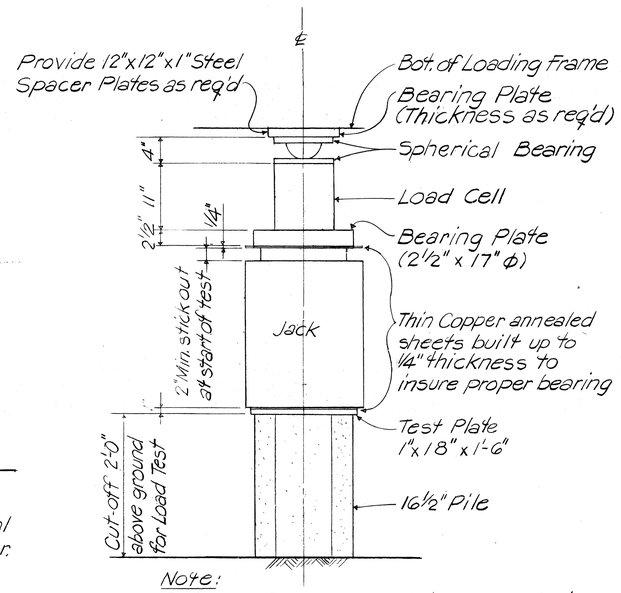


SCHEMATIC SET-UP FOR APPLYING LOADS TO TEST PILE

Scale: 1/2" = 1'-0"

NOTES:

1. The apparatus for applying known compressive loads to the pile shall be assembled so that the loads are applied axially to minimize eccentric loading.
2. Where necessary, the unsupported length of the pile shall be braced to prevent buckling.
3. The steel test plate shall be set in high-strength quick-setting grout. Full bearing must be achieved between the plate and grout; that is, no voids should exist between them.
4. Two reference beams, one on each side of the pile shall be oriented perpendicular to the direction of the test beams of the load frame. Two dial gages shall be mounted approximately equidistant from the center of and on opposite sides of the pile with stems parallel to the direction of the load application.
5. The reference beams shall be independently supported with supports firmly embedded in the ground at a clear distance of not less than 10 feet from the cribbing.
6. Reference beams shall be of sufficient stiffness to prevent excessive deflections and should be cross connected to provide additional rigidity.
7. One end of each reference beam shall be free to move as the lengths of beams change with temperature variations.
8. Smooth bearing surfaces perpendicular to the direction of measurement shall be provided for the gage stems. These surfaces shall be of glass or hard metal. No wood shall be allowed in the measurement systems.
9. Provisions, such as a protective canopy, shall be made to protect the instrumentation, measuring system and reference system from adverse wind, rain and temperature variations or other disturbances.
10. The lateral movements of the pile shall be measured using two dial gages mounted on the reference beams 90 degrees apart with their stems horizontal & bearing against smooth bearing plates or surfaces.



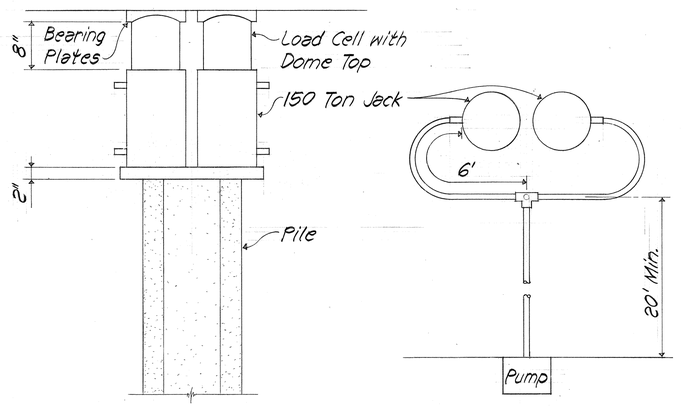
Note:
Set Test Plate in non-shrink non-metallic grout set on Pile so as to obtain full bearing. Plate surfaces receiving grout need not be planed.

DETAIL FOR JACKING SET-UP

Scale: 1" = 1'-0"

LOAD FRAME NOTES:

1. The Loading Frame shall be designed to support load required to permit the Test Pile to be axially loaded to 350 Tons. Loading blocks to be provided by Contractor.
2. Design of Frame shall conform to the latest Edition of the Manual of Steel Construction by the American Institute of Steel Construction. Allowable stresses in this manual may be increased by 20% for main structural members. This increase in allowable stresses will not be allowed for Connections, Bolts and Welds.
3. At the option of the Contractor, the Loading Frame may be fabricated from new or used structural steel shapes; or loading frames previously used in other projects may be used provided the design and construction of the frame to be furnished conforms to the requirements in Notes 1 and 2 above.
4. Load test site shall be enclosed with a 5 ft. high temporary fence (wire mesh on wood poles). Payment shall be considered incidental to "Pile Load Test."
5. Timber Cribbing and Platform may be of new or used sound timber and shall be of adequate size and grade to safely carry the loads imposed upon them resulting from the Load Tests.
6. Surfaces of all bearing plates shall be planed or milled smooth to provide full surface contact. Top and bottom of Load Transfer Assembly to be planed after welding.



ALTERNATE LOAD TEST SET-UP

Not to Scale

DATE	REVISION
11/15/88	ADDED ALTERNATE LOAD TEST SET-UP & FRAME LOAD

SURVEY PLOTTED BY _____ DATE
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SSFH Engineers, Inc.
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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PILE LOAD TEST DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)

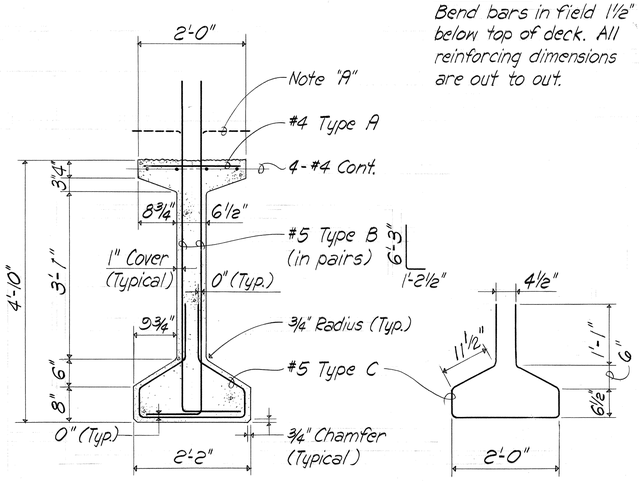
SCALE: AS NOTED DATE:

SHEET No. 76 OF 21 SHEETS

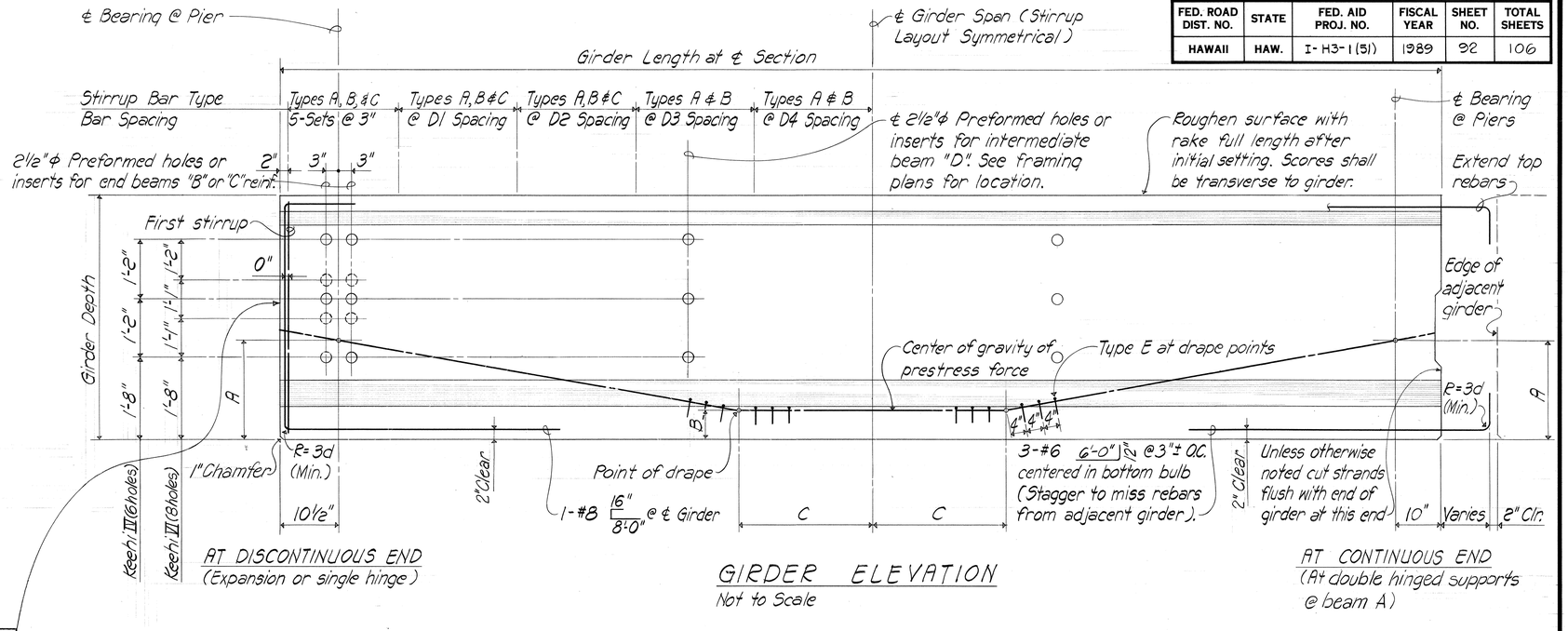
ADD. 91

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	92	106

NOTE "A":
Bend bars in field 1½" below top of deck. All reinforcing dimensions are out to out.



KEEHI IV GIRDER SECTION
Scale: ¾" = 1'-0"

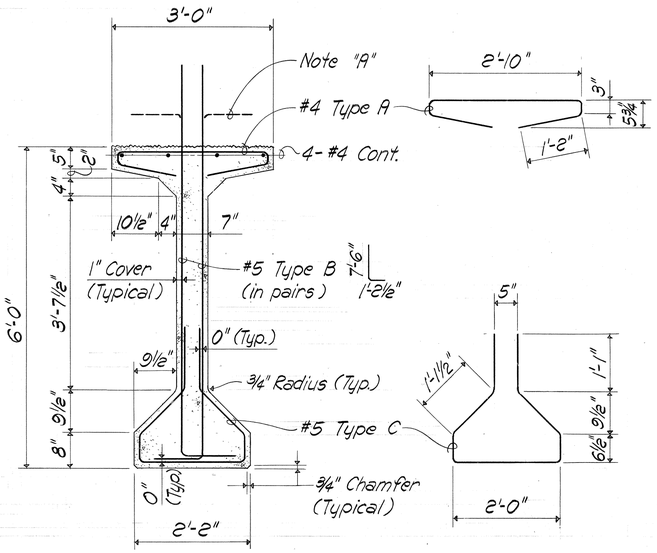


AT DISCONTINUOUS END
(Expansion or single hinge)

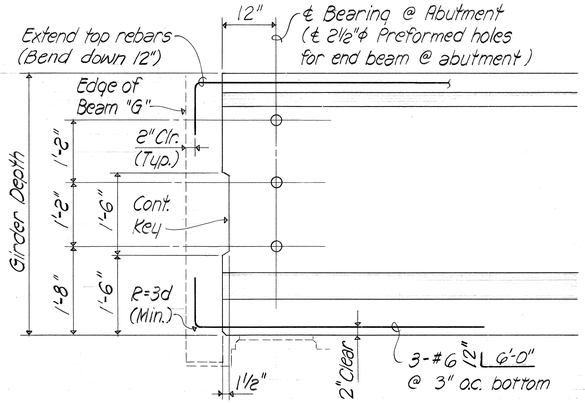
GIRDER ELEVATION
Not to Scale

AT CONTINUOUS END
(At double hinged supports @ beam A)

Grind ends of strands flush w/ end of girder and apply 2-5 mil coats of Epoxy to end of girder at discontinuous ends

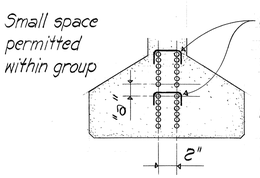


KEEHI VI GIRDER SECTION
Scale: ¾" = 1'-0"



PARTIAL GIRDER ELEVATION AT ABUTMENT
Not to Scale

NOTES:
1. Inserts & preformed holes are incidental to prestressed Girders.
2. Unless noted otherwise, ends of girders shall be vertical.



ARRANGEMENT & CLEARANCE FOR PRESTRESSING STRANDS
1. Strands may be bundled in groups as shown.
2. The minimum distance "a" between groups or individual strands is 2" for ½" strands.
3. "a" is measured between centers of adjacent strands.

BUNDLING OF PRESTRESSING REINFORCEMENT
Not to scale

REFERENCE DRAWINGS:
1. Girder dapped and fixed end connections details ---------- Sht. T10
2. Girder schedule ---------- Sht. T9

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PRESTRESSED GIRDER DETAILS

KEEHI IV & KEEHI VI GIRDERS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)

SCALE: AS NOTED DATE:

SHEET No. 77 OF 21 SHEETS

ORIGINAL PLAN
SURVEY PLOTTED BY ____ DATE
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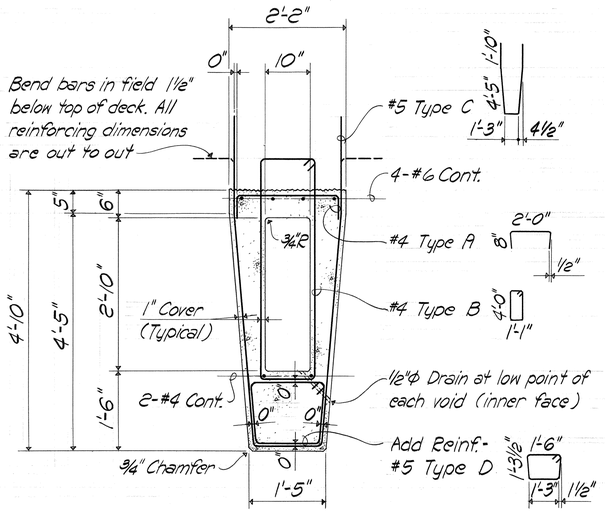
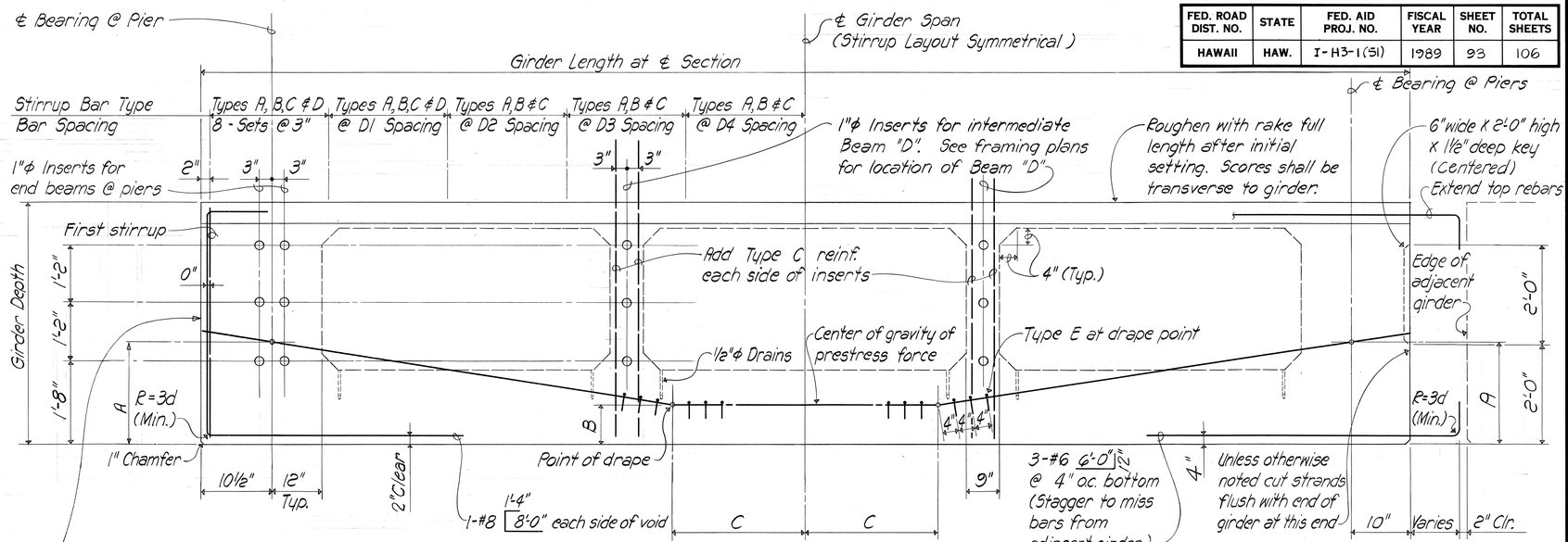
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	93	106



KEEHI IVF GIRDER SECTION

Scale : ¾" = 1'-0"



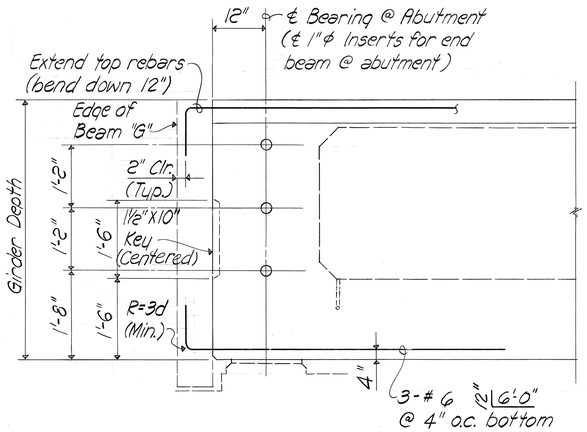
AT DISCONTINUOUS END
(Expansion or single hinge)

GIRDER ELEVATION

Not to Scale

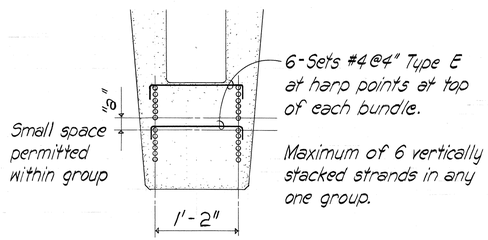
AT CONTINUOUS END
(At double hinged supports @ beam A)

Grind ends of strand flush w/ end of girder and apply 2-5mil coats of Epoxy to end of girder at discontinuous ends



PARTIAL GIRDER ELEVATION AT ABUTMENT

Not to Scale



BUNDLING OF PRESTRESSING REINFORCEMENT

Not to Scale

REFERENCE DRAWINGS :

1. Girder dapped end fixed end connections details ---------- Sht. T11
2. Girder schedule ---------- Sht. T9

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ORIGINAL PLAN
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PRESTRESSED GIRDER DETAIL

KEEHI IVF GIRDER

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)

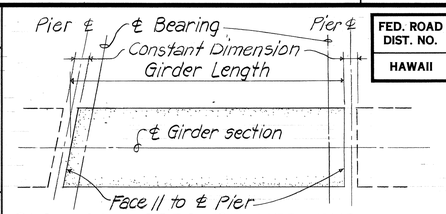
SCALE: AS NOTED DATE :

SHEET No. T8 OF 21 SHEETS

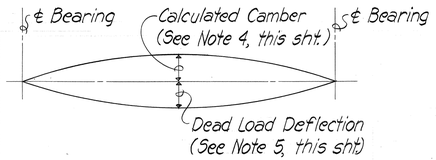
GIRDER SCHEDULE

GIRDER TYPE	WORKING PRESTRESS FORCE (AFTER ALL LOSSES) KIPS	CALCULATED CAMBER (SEE NOTE 4 THIS SHEET) INCHES	DEAD LOAD DEFLECTION (SEE NOTE 5 THIS SHEET) INCHES	LOCATION OF CENTER OF GRAVITY OF PRESTRESS FORCE						STIRRUPS NUMBER & SPACING				REQUIRED MINIMUM CONCRETE STRENGTH BEFORE RELEASE OF STRANDS (P.S.I.)	REMARKS (See legend for notes below)
				DISTANCE A (INCHES)	DISTANCE B (INCHES)	DISTANCE C	MASKED STRAND DATA: EFFECTIVE PRESTRESS FORCE	MASKED STRAND DATA: DISTANCE A*	MASKED STRAND DATA: DISTANCE M	@ D1 SPACING	@ D2 SPACING	@ D3 SPACING	@ D4 SPACING		
IV-1	611	-0.46	0.32	17.31	8.38	L/10				16@6"	12@8"	6@12"	Bal.@16"	4000	Note (a)
IV-2	942	-1.22	1.15	16.60	7.18	L/10				40@5½"	16@8"	7@12"	Bal.@16"	4500	Note (b)
IV-3	895	-1.15	0.77	15.38	7.18	L/10				19@6"	16@8"	9@12"	Bal.@16"	4500	Note (a) & (c) @ spans 20 & 27
IV-4	895	-1.13	0.92	15.38	7.88	L/10				35@6"	13@8"	9@12"	Bal.@16"	4500	Note (b)
IV-5	895	-1.01	0.70	15.47	8.38	L/10				12@6"	16@8"	8@12"	Bal.@16"	4500	Note (d)
IVF-1	705	-0.64	0.35	18.21	8.71	L/10				12@6"	16@8"	8@12"	Bal.@16"	4000	Note (a)
IVF-2	1178	-1.35	1.13	20.72	11.00	L/10				33@5½"	22@8"	4@12"	Bal.@16"	4500	Note (b)
IVF-3	1130	-1.53	1.10	21.08	8.80	L/10				20@6"	16@8"	9@12"	Bal.@16"	4500	Note (a)
IVF-4	1130	-1.27	0.86	20.42	10.71	L/10				19@6"	16@8"	10@12"	Bal.@16"	4500	Notes (a) & (c)
IVF-5	1081	-1.40	1.04	18.71	9.21	L/10				26@6"	16@8"	10@12"	Bal.@16"	4500	Note (b)
IVF-6	1178	-1.40	0.93	20.72	10.65	L/10				19@6"	17@8"	12@12"	Bal.@16"	4500	Note (d)
VI-1	1272	-1.58	1.41	22.81	7.97	L/10				25@6"	22@8"	13@12"	Bal.@16"	4500	Note (a)
VI-2	1178	-1.38	1.08	21.44	7.77	L/10				27@6"	19@8"	12@12"	Bal.@16"	4500	Note (a)

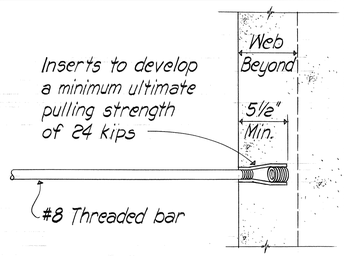
NOTES:
- (a) Simple span girder
- (b) Continuous support at one end.
- (c) Dapped ends
- (d) Fixed joint at one end.



PLAN AT GIRDER SKEWED END
Not to scale



CAMBER DIAGRAM
Not to scale



INSERT DETAIL
Not to scale

NOTES FOR PRESTRESSED GIRDERS:

1. Concrete shall have a minimum ultimate 28-day cylinder strength of 6,000 psi.
2. Pretensioned strands shall be 7-wire ½"ϕ stress-relieved steel strands (area = 0.153 in.² with an ultimate strength of 270 ksi. For properties see State Standard Specifications. Total loss due to creep, shrinkage, elastic shortening and relaxation of steel = 45,000 psi
3. Non-prestressed reinforcing steel shall be Grade 40, unless otherwise noted. For properties see State Standard Specifications.
4. The calculated camber includes the effect of the initial prestress force and the weight of the girder after removal from bed. Negative values shown for calculated camber indicate a net upward deflection. Calculated camber values shown do not account for any camber growth of the girders. The actual girder camber shall not exceed the calculated camber shown on the plans by more than 100% at time of installation.
5. The dead load deflection includes the combined effects of the weight of slab, haunch and diaphragm.
6. Strand pattern shall be symmetrical about the longitudinal ℄ of the girder span.
7. Strand release sequence shall not induce any lateral deflection of the girder.
8. Contractor shall submit his proposed strand pattern and releasing sequence to the Engineer for approval.
9. During curing care shall be taken to avoid any lateral deflection of the girder due to improper orientation.
10. Lifting devices shall be placed as close as possible to the center line of bearings of the girder. Details and locations of lifting devices shall be submitted to the Engineer for approval. Such approval does not relieve the Contractor of his responsibilities if girder is damaged due to failure of the lifting device.
11. See Framing Plans for locations of diaphragms, type, mark number and length of individual girders. Lengths shown do not include effect of elastic shortening.
12. Grind ends of strand flush with end of girder and apply 2-5mil coats of Epoxy to end of girder at discontinuous ends.
13. The use of fly ash shall not be permitted in prestressed concrete.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	94	106

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PRESTRESSED GIRDER SCHEDULE

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)

SCALE: AS NOTED DATE:

SHEET No. 79 OF 21 SHEETS

ORIGINAL PLAN
NOTE BOOK No.
SURVEY PLOTTED BY DATE
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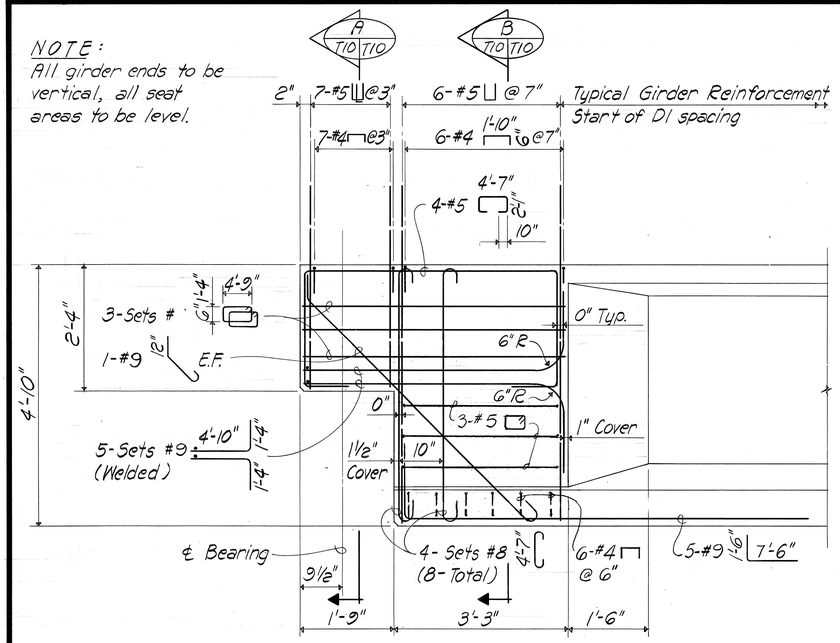
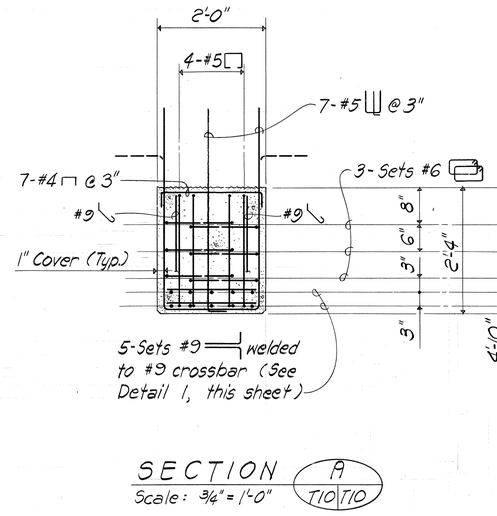
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I- H3- 1(51)	1989	95	106

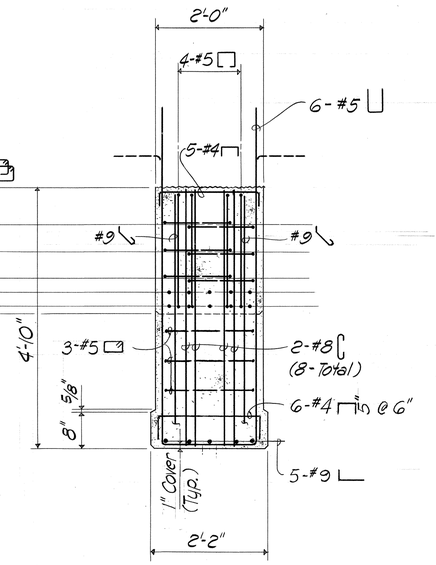
NOTE:
All girder ends to be vertical, all seat areas to be level.



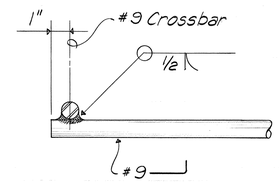
KEEHI IV GIRDER DAPPED END ELEVATION
Scale: 3/4" = 1'-0"



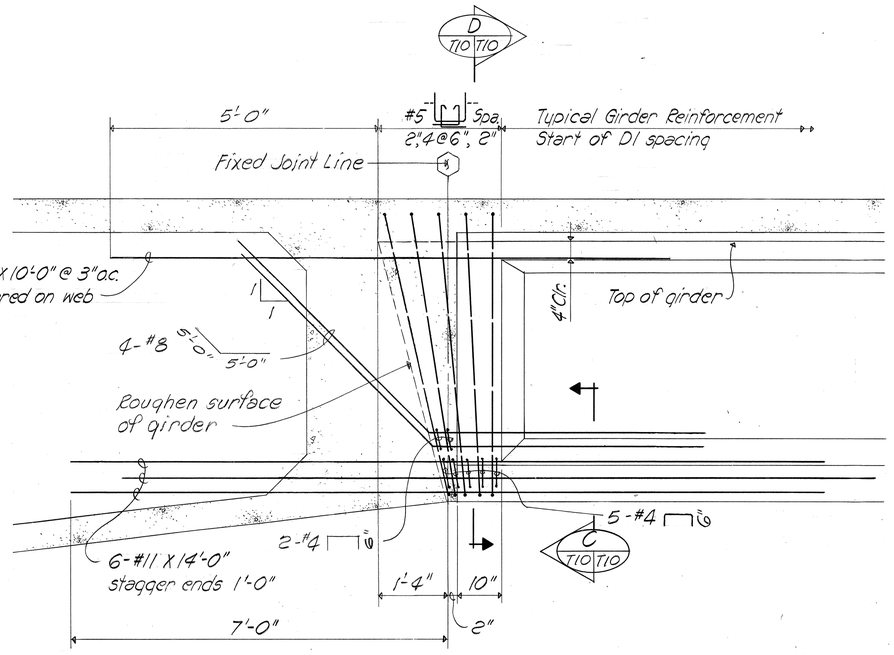
SECTION A T10 T10
Scale: 3/4" = 1'-0"



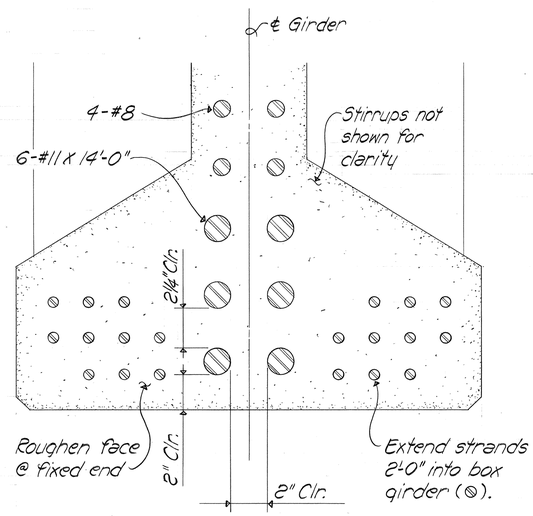
SECTION B T10 T10
Scale: 3/4" = 1'-0"



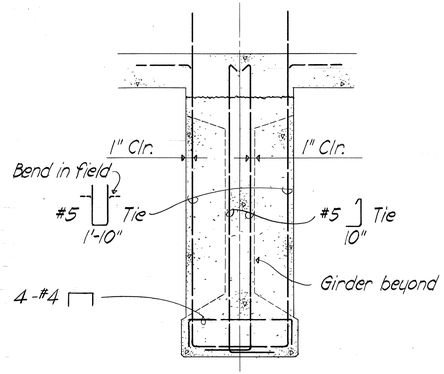
DETAIL 1 T10 T10
Scale: 3" = 1'-0"



KEEHI IV GIRDER FIXED END ELEVATION
Scale: 3/4" = 1'-0"



SECTION C T10 T10
Scale: 3" = 1'-0"



SECTION D T10 T10
Scale: 3/4" = 1'-0"

SURVEY PLOTTED BY ____ DATE
DRAWN BY ____
TRACED BY ____
DESIGNED BY ____
QUANTITIES BY ____
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ORIGINAL PLAN
NOTE BOOK
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HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

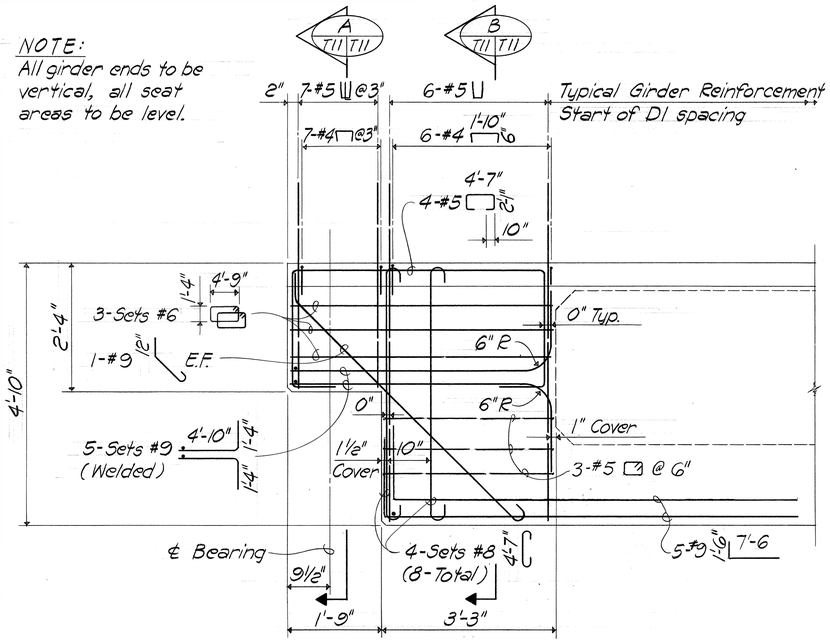
KEEHI IV GIRDER
DAPPED & FIXED END DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)
SCALE: AS NOTED DATE:

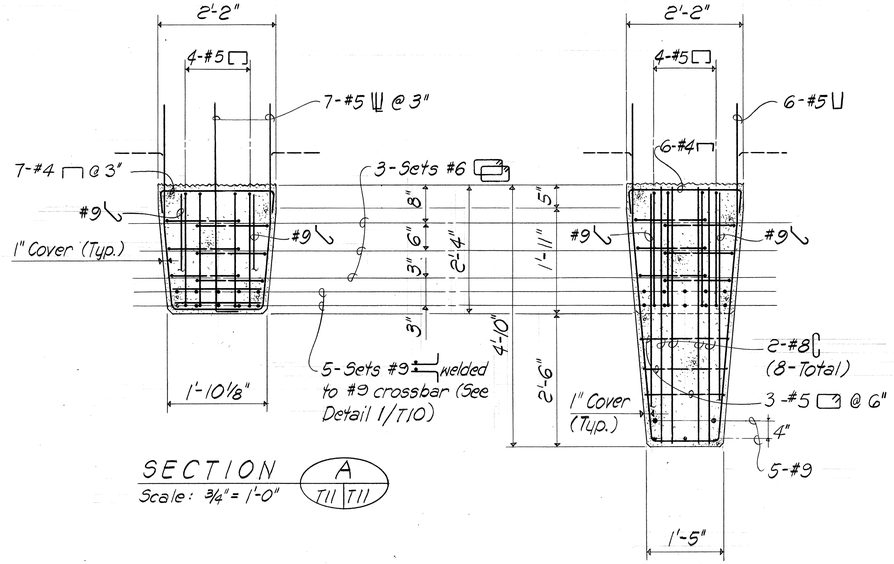
SHEET NO. T10 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	96	106

NOTE:
All girder ends to be vertical, all seat areas to be level.

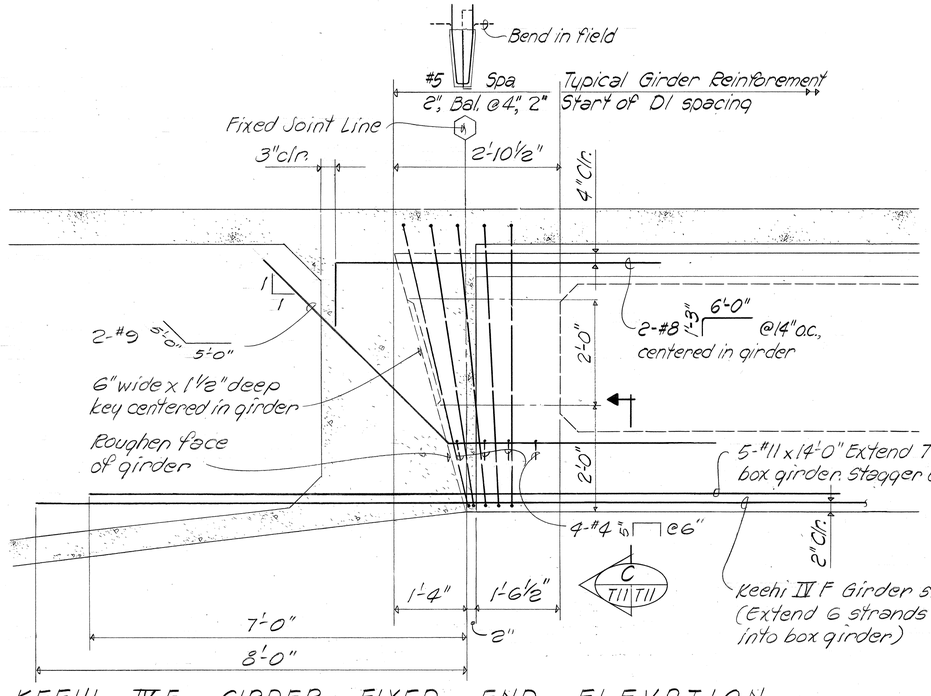


KEEHI IVF GIRDER DAPPED END ELEVATION
Scale: 3/4" = 1'-0"

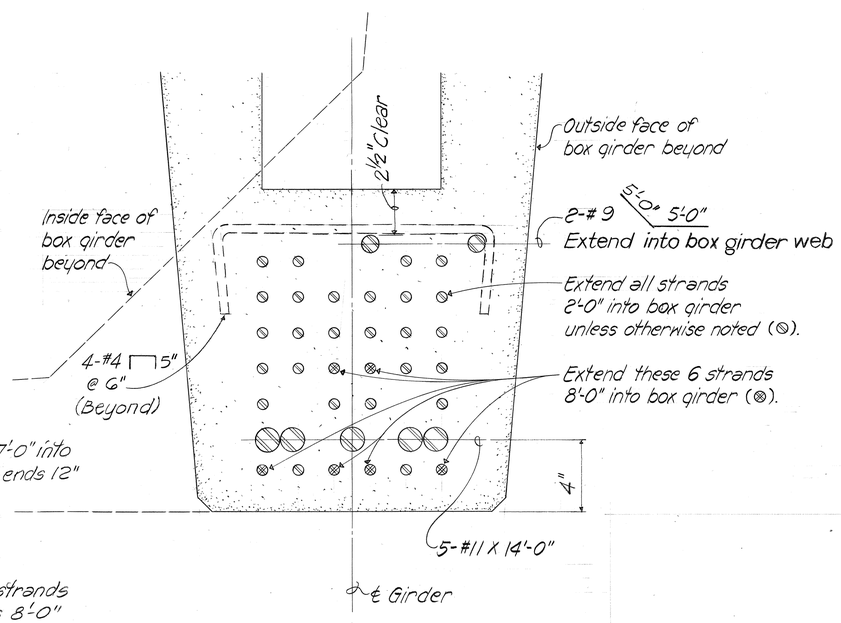


SECTION A
Scale: 3/4" = 1'-0"

SECTION B
Scale: 3/4" = 1'-0"



KEEHI IVF GIRDER FIXED END ELEVATION
Scale: 3/4" = 1'-0"



SECTION C
Scale: 3" = 1'-0"

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Howard Y. Fukuda

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

KEEHI IVF GIRDER

DAPPED & FIXED END DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)
SCALE: AS NOTED DATE:

SHEET No. 711 OF 21 SHEETS

ORIGINAL PLAN
SURVEY PLOTTED BY
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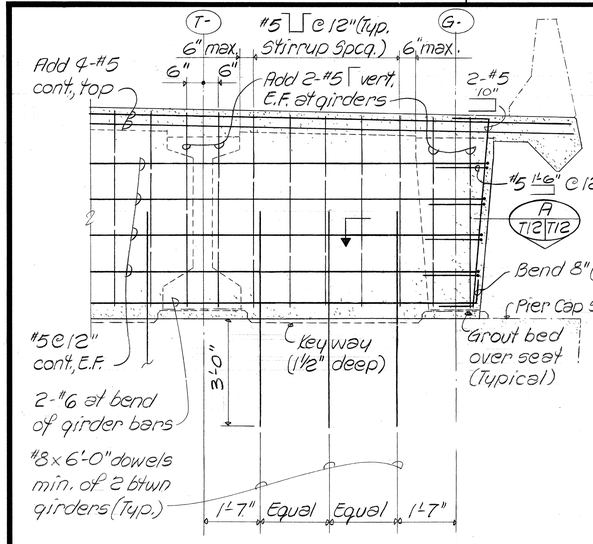
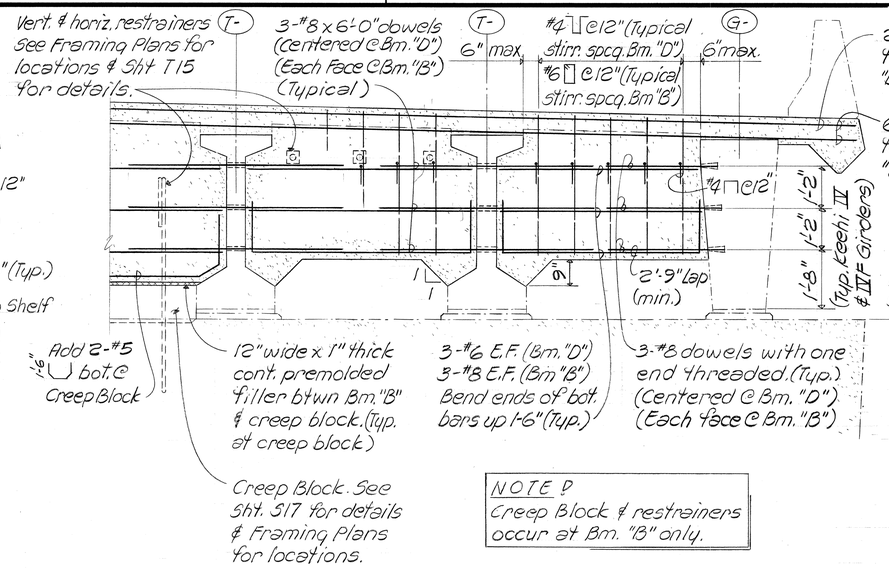
QUANTITIES BY
CHECKED BY
DATE
No.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	97	106

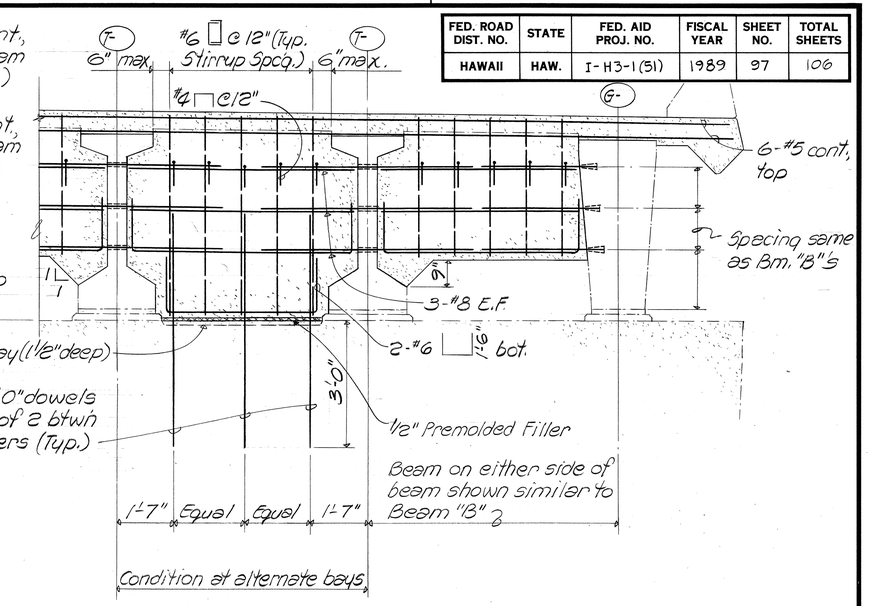


BEAM "A" (END BEAM AT CONTINUOUS SUPPORT)



NOTE !
Creep Block & restrainers occur at Bm. "B" only.

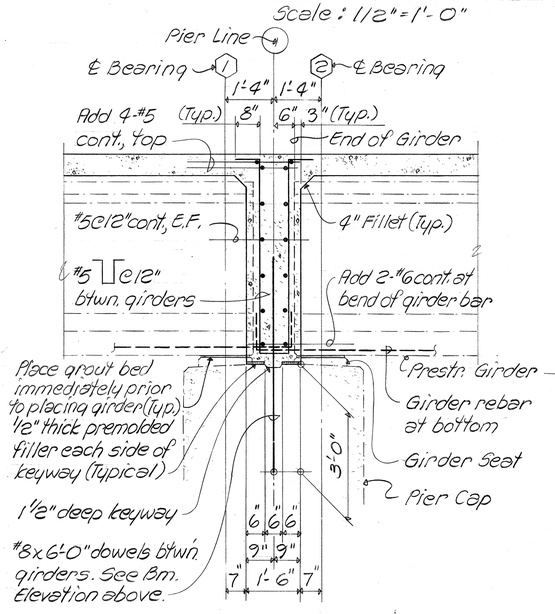
BEAM "B" (END BEAM AT EXPANSION BEARINGS)
BEAM "D" (INTERMEDIATE BEAMS BTWN END BEAMS)



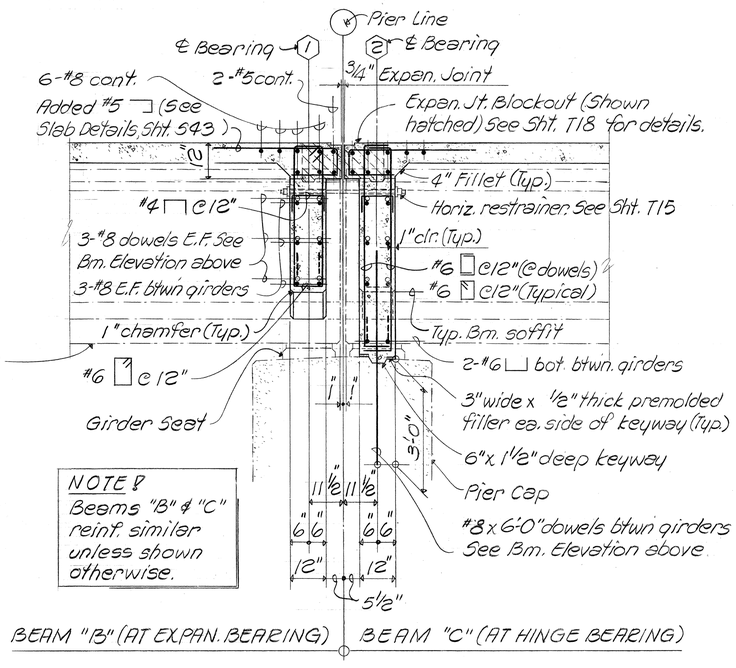
BEAM "C" (END BEAM AT HINGE BEARINGS)

PARTIAL ELEVATIONS OF END BEAMS AT SUPPORTS SHOWING REINFORCING

Scale: 1/2" = 1'-0"



BEAM "A" (AT CONTINUOUS SUPPORT)



NOTE !
Beams "B" & "C" reinf. similar unless shown otherwise.

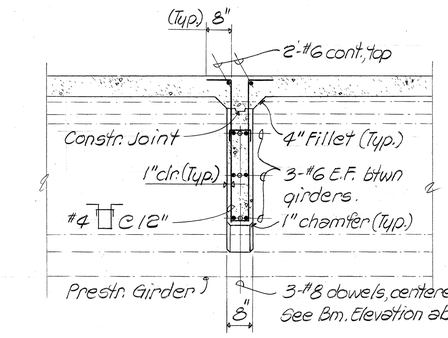
BEAM "B" (AT EXPAN. BEARING)

BEAM "C" (AT HINGE BEARING)

Note !
Pour Beam "A" monolithic with deck slab.

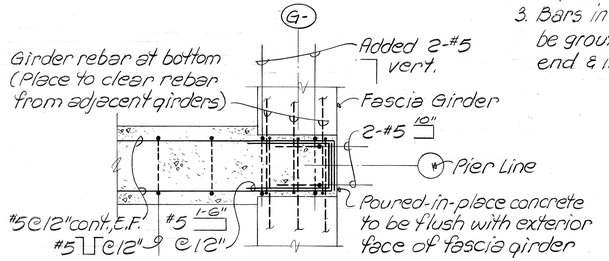
END BEAM SECTIONS

Scale: 1/2" = 1'-0"



BEAM "D" SECTION (INTERMEDIATE BM.)

Scale: 1/2" = 1'-0"



SECTION A (T12 T12)

Scale: 3/4" = 1'-0"

NOTES:
1. Beams B, C, D, E, F & G shall be poured at least 7 days prior to pouring deck slab.
2. See Sht. 517 for top of Pier Cap shelf details
3. Bars in preformed holes shall be grouted in place before pouring end & intermediate beams.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BEAM DETAILS
BEAMS "A", "B", "C" & "D"

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)

SCALE: AS NOTED DATE: AUG., 1984

SHEET No. T12 OF 21 SHEETS

ORIGINAL PLAN
SURVEY PLOTTED BY
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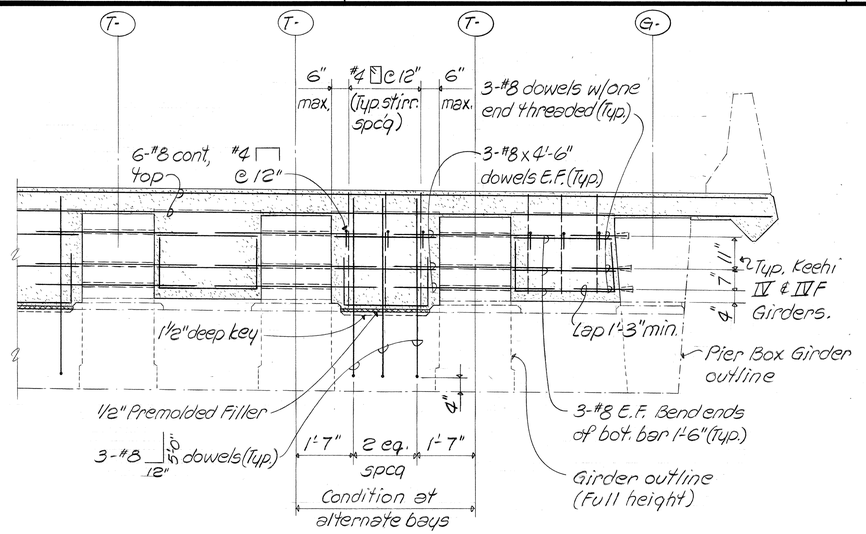
NOTE BOOK
No.

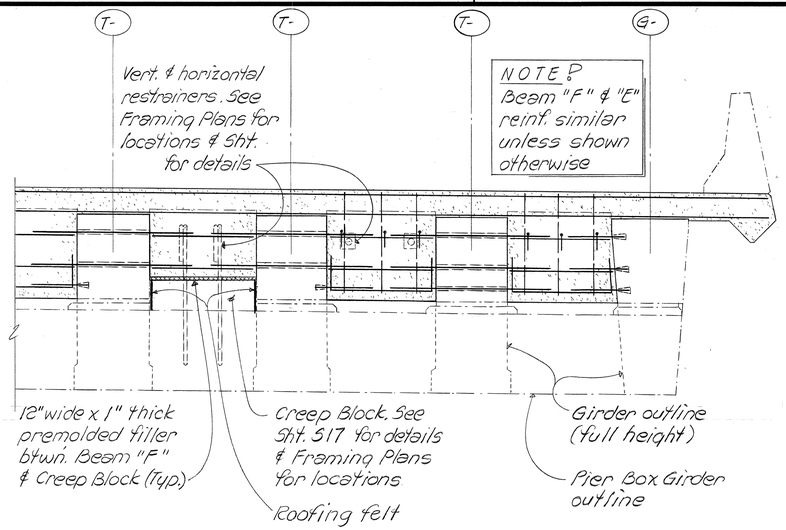
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	98	106



END BEAM AT PIER BOX GIRDER HINGE BEARING

PARTIAL ELEVATION BEAM "E"

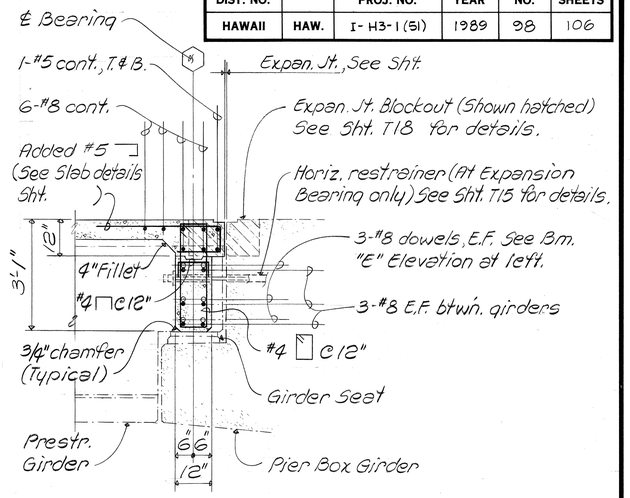
Scale: 1/2" = 1'-0"



END BEAM AT PIER BOX GIRDER EXPANSION BEARING

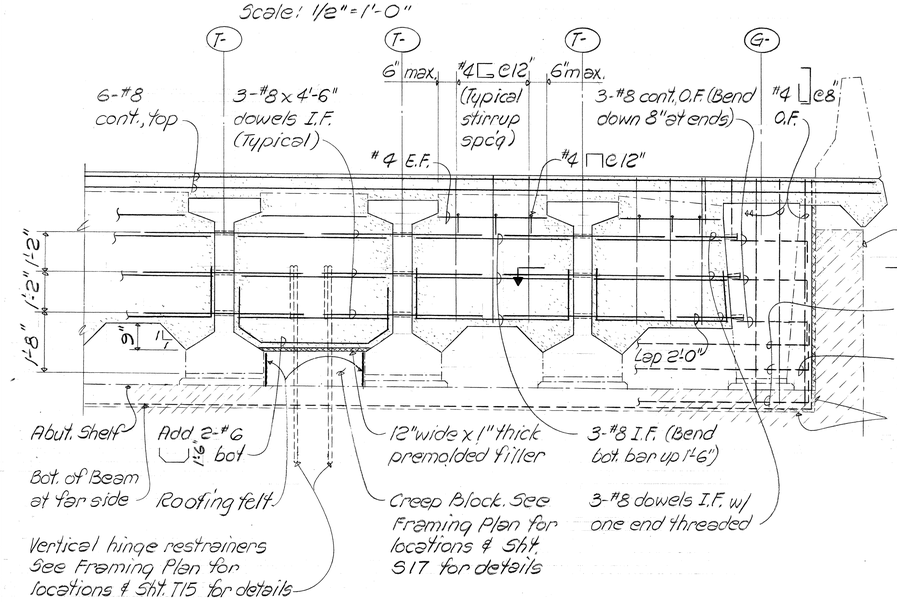
PARTIAL ELEVATION BEAM "F"

Scale: 1/2" = 1'-0"



TYPICAL SECTION (BEAMS "E" & "F")

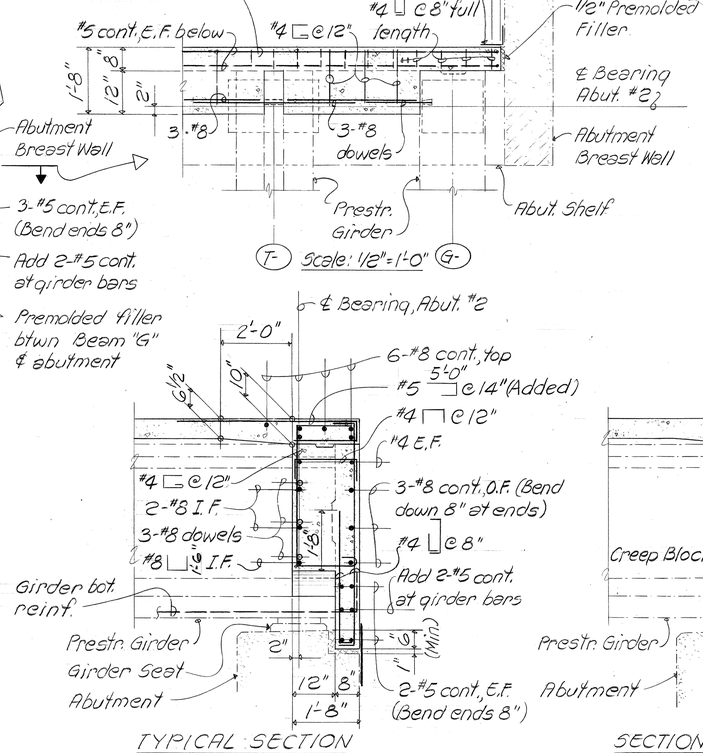
Scale: 1/2" = 1'-0"



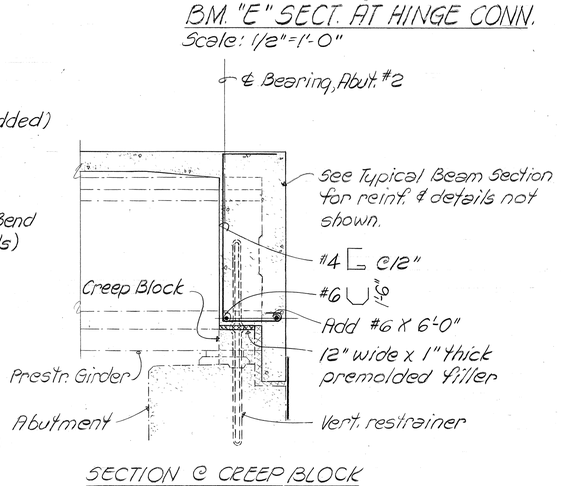
EXPANSION BEARING AT ABUTMENT

PARTIAL ELEVATION BEAM "G"

Scale: 1/2" = 1'-0"



TYPICAL SECTION

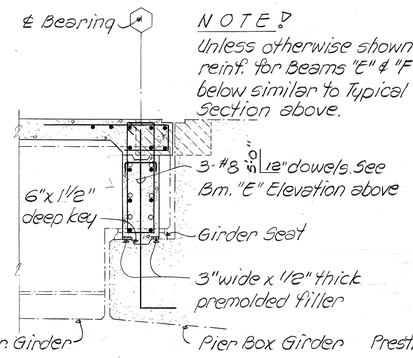


SECTION @ CREEP BLOCK

BEAM "G" SECTIONS

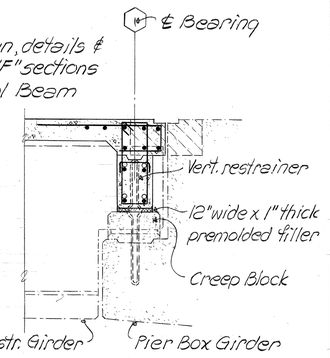
Scale: 1/2" = 1'-0"

NOTE: Unless otherwise shown, details & reinf. for Beams "E" & "F" sections below similar to Typical Beam Section above.



B.M. "E" SECT. AT HINGE CONN.

Scale: 1/2" = 1'-0"



B.M. "F" SECT. AT CREEP BLOCK

Scale: 1/2" = 1'-0"

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

BEAM DETAILS
BEAMS "E", "F" & "G"

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)

SCALE: AS NOTED DATE:

SHEET NO. T13 OF 21 SHEETS

ORIGINAL PLAN
SURVEY PLOTTED BY
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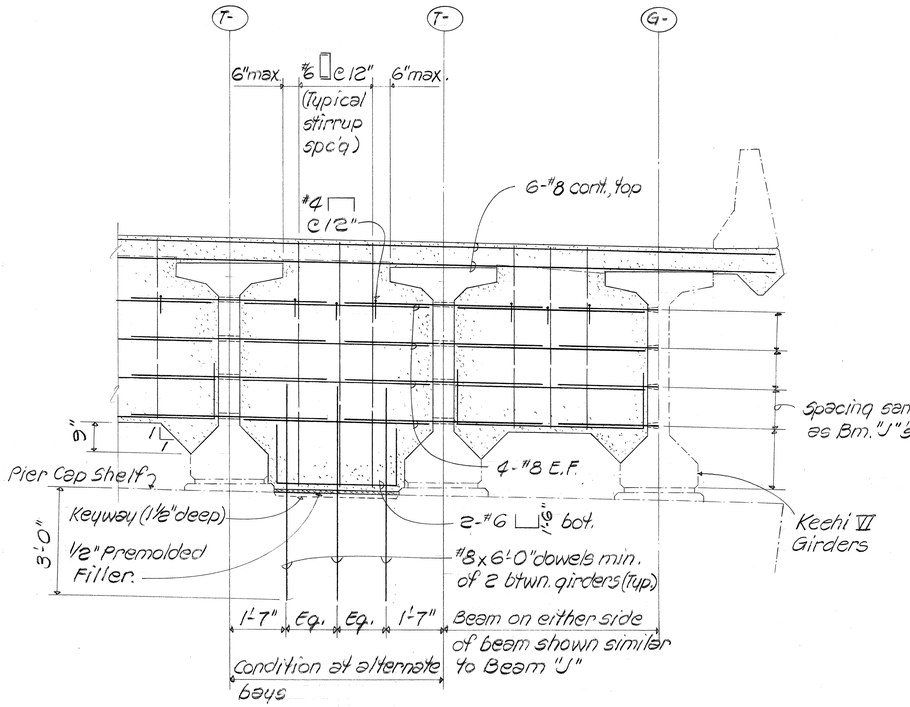
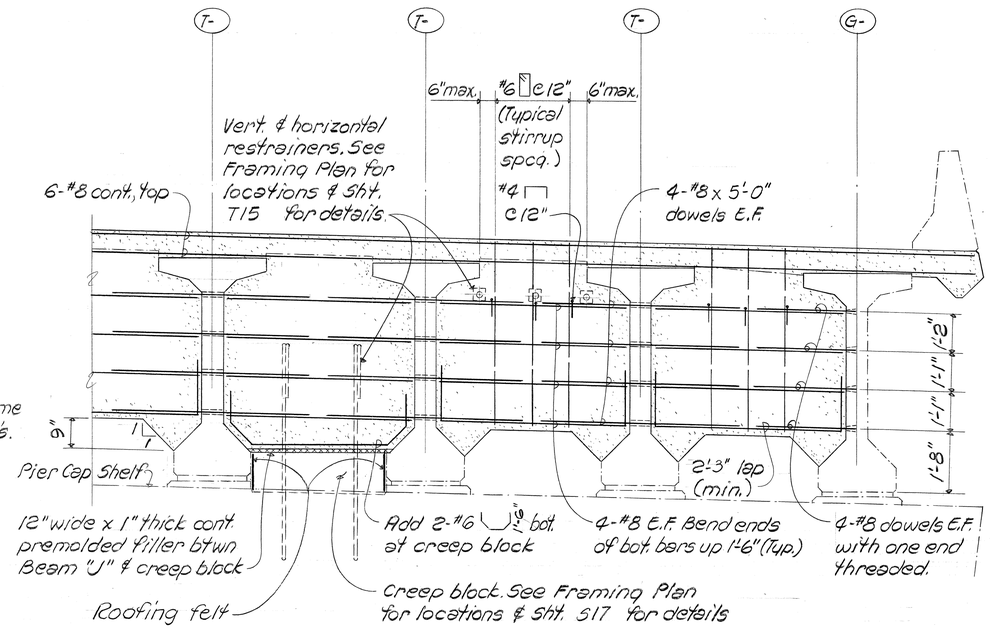
No.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	99	106



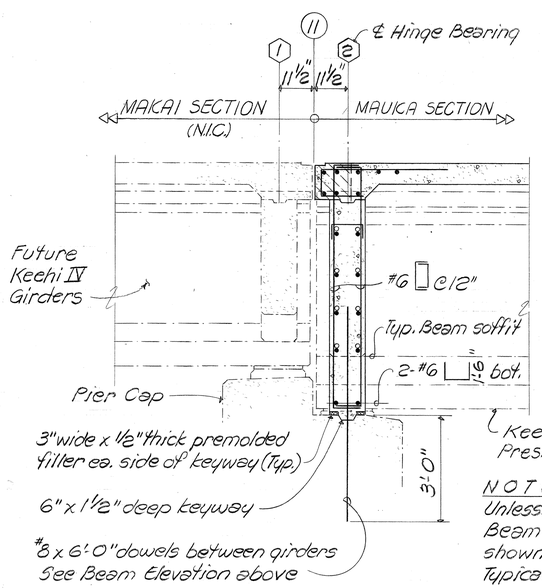
BEAM "H" (END BEAM AT HINGE BEARINGS)



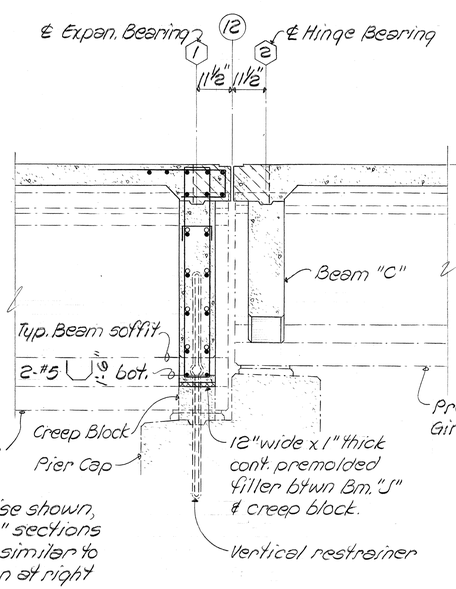
BEAM "J" (END BEAM AT EXPANSION BEARINGS)

PARTIAL ELEVATIONS OF END BEAMS AT SUPPORTS FOR KEEHI VI GIRDERS

Scale: 1/2" = 1'-0"

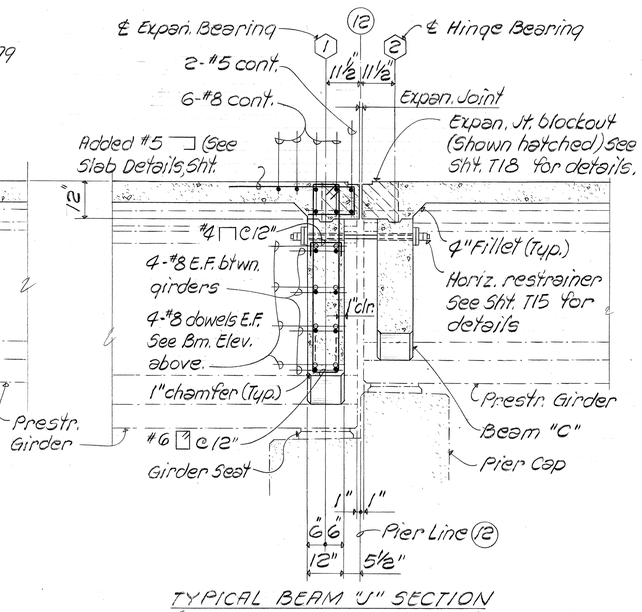


BEAM "H" SECTION AT HINGE CONNECTION



BEAM "J" SECTION AT CREEP BLOCK

NOTE!
Unless otherwise shown, Beam "H" & "J" sections shown above similar to Typical Section at right



TYPICAL BEAM "J" SECTION (BEAM "H" OPPOSITE HAND)

END BEAMS "H" & "J" SECTIONS

Scale: 1/2" = 1'-0"

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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NOTE BOOK	DESIGNED BY	
	QUANTITIES BY	
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SSFM Engineers, Inc.
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STATE OF HAWAII
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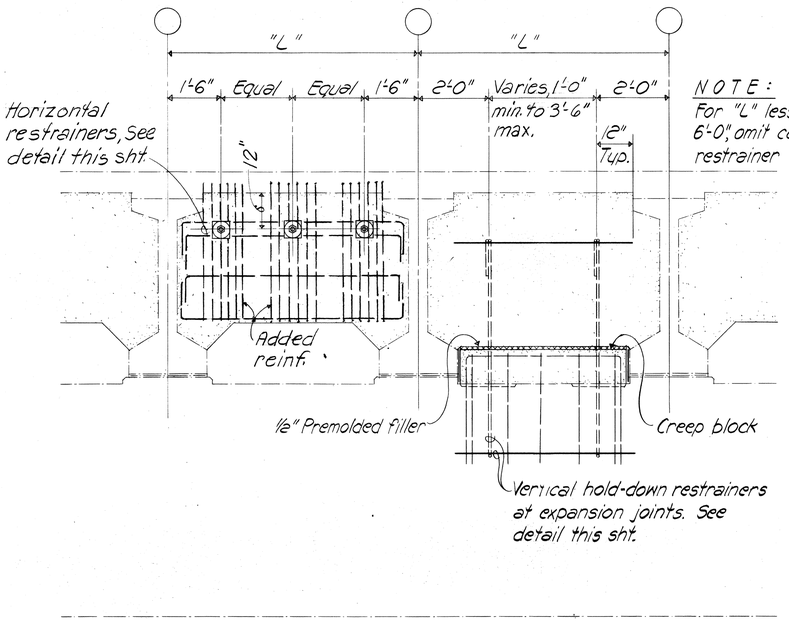
HIGHWAYS DIVISION

BEAM DETAILS
BEAMS "H" & "J"

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)
SCALE: AS NOTED DATE:

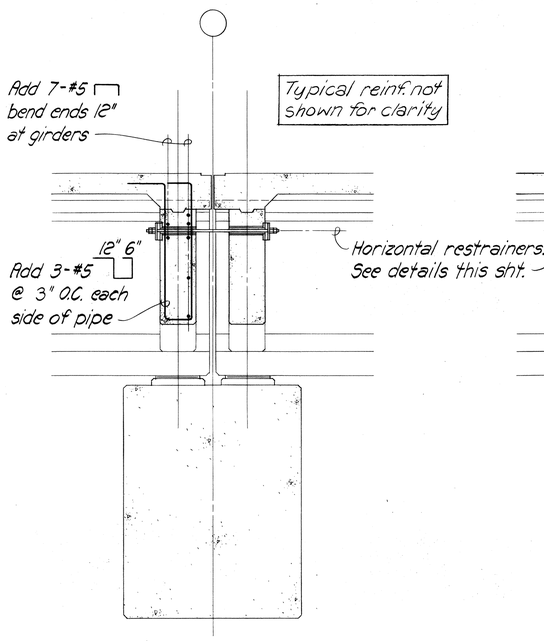
SHEET No. T14 OF 21 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	100	106

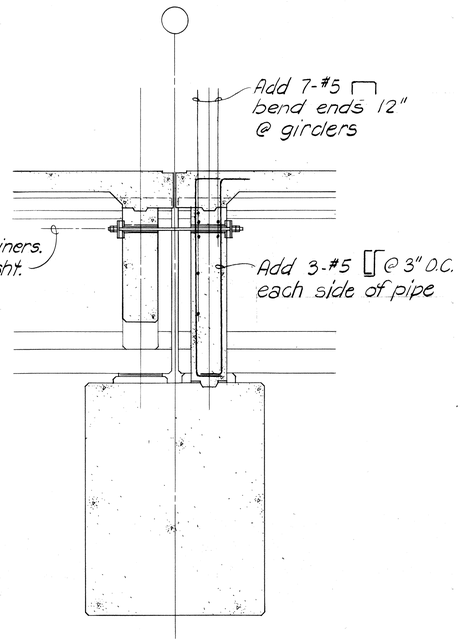


NOTE: For "L" less than 6'-0", omit center restrainer

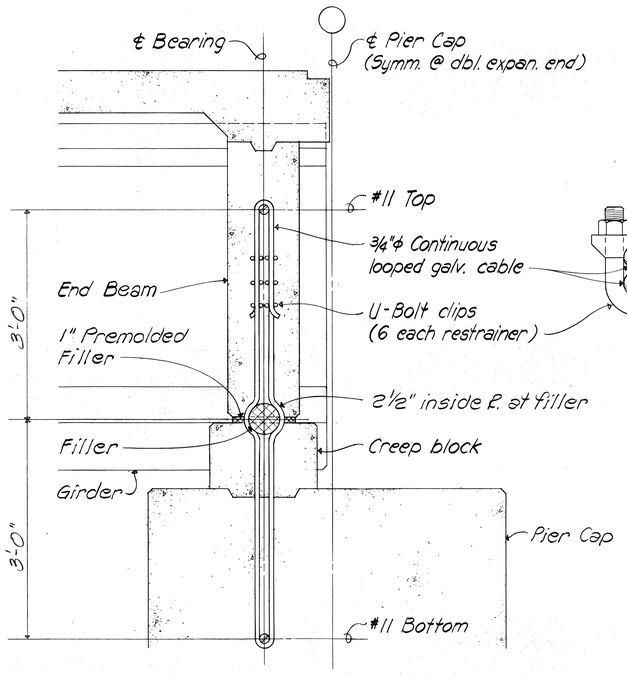
END BEAM ELEVATION AT EXPANSION JOINT
Scale: 1/2" = 1'-0"



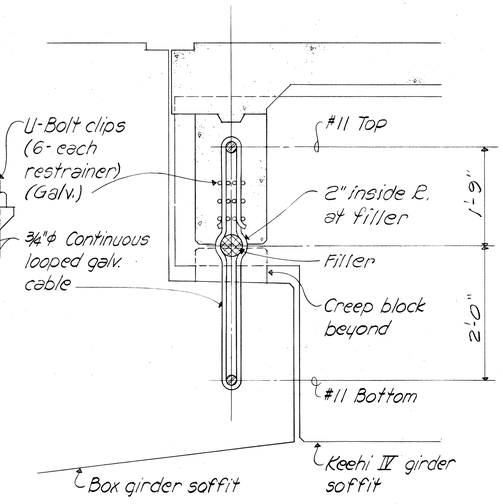
END BEAM SECTION AT DOUBLE EXPANSION END
Scale: 1/2" = 1'-0"



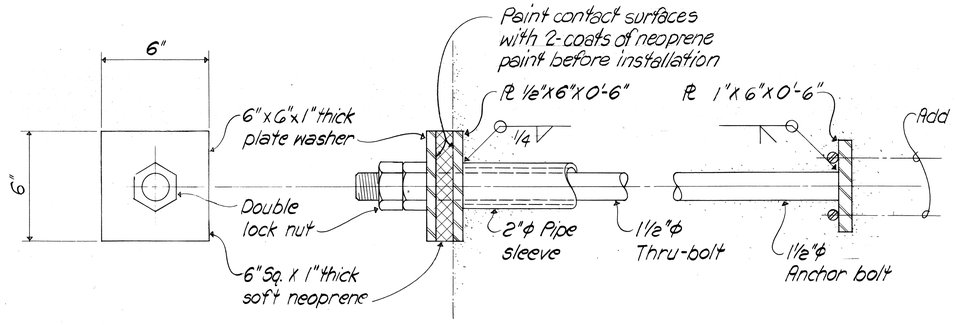
END BEAM SECTION AT EXPANSION & HINGE END
Scale: 1/2" = 1'-0"



TYPICAL VERTICAL RESTRAINER DETAIL
Scale: 1" = 1'-0"



VERTICAL RESTRAINER AT GIRDER DAPPED END
Scale: 1" = 1'-0"



FRONT ELEVATION | TYPICAL END SECTION | SECTION AT EMBEDDED END AT BOX GIRDER

HORIZONTAL RESTRAINER DETAIL
Scale: 3" = 1'-0"

NOTES:
1. Galv. all hardwares after fabrication.
2. Paint all exposed surfaces with 2 coats of neoprene paint after installation.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HINGE RESTRAINER DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)
SCALE: AS NOTED DATE: AUG., 1984

SHEET NO. 715 OF 21 SHEETS

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY
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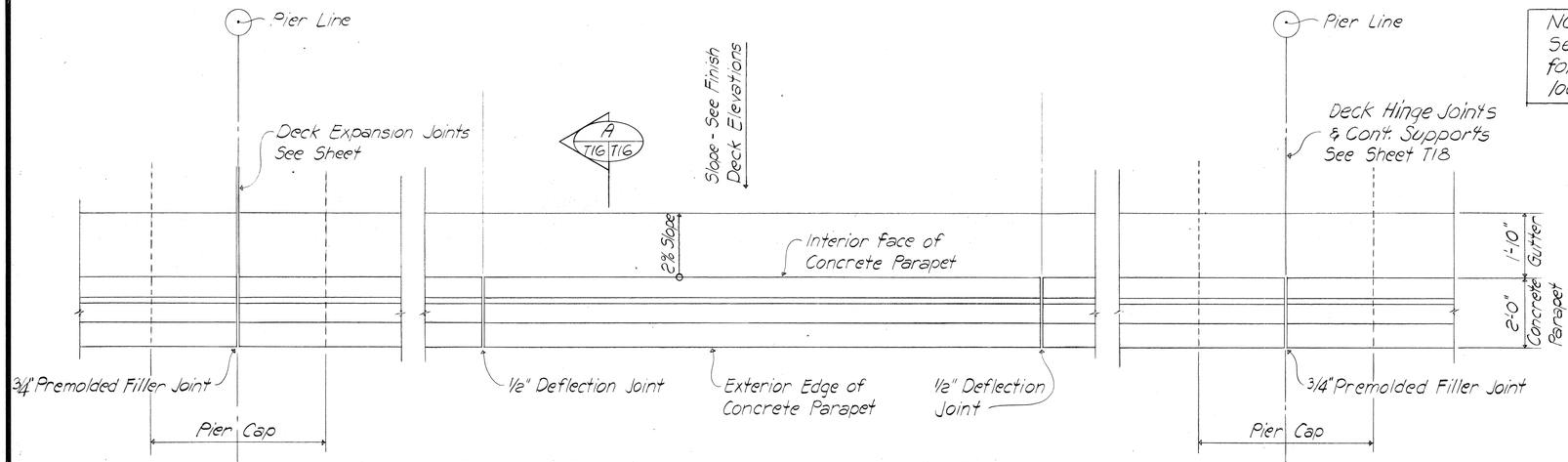
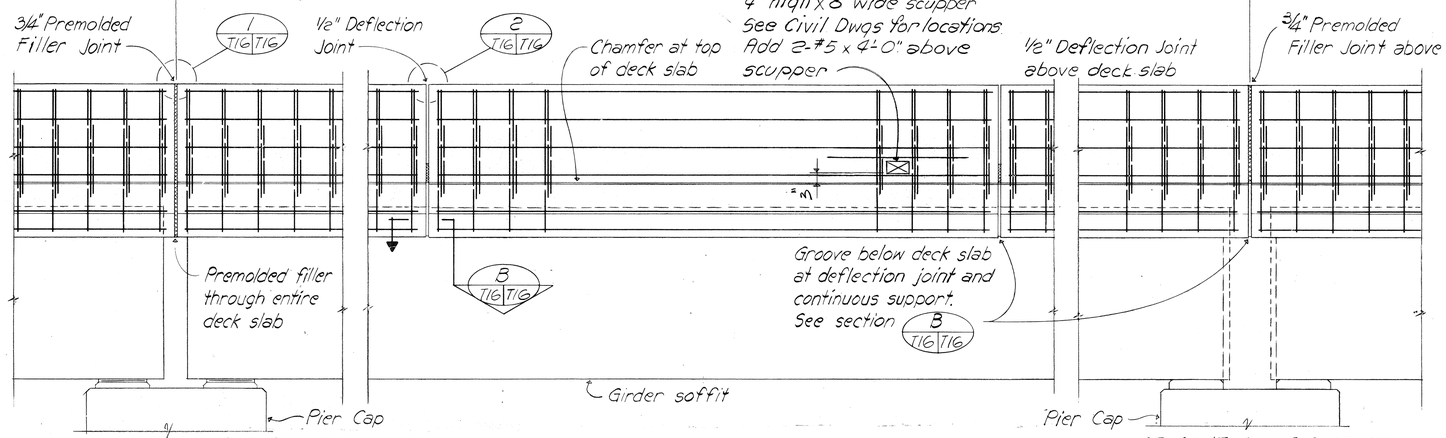
No.

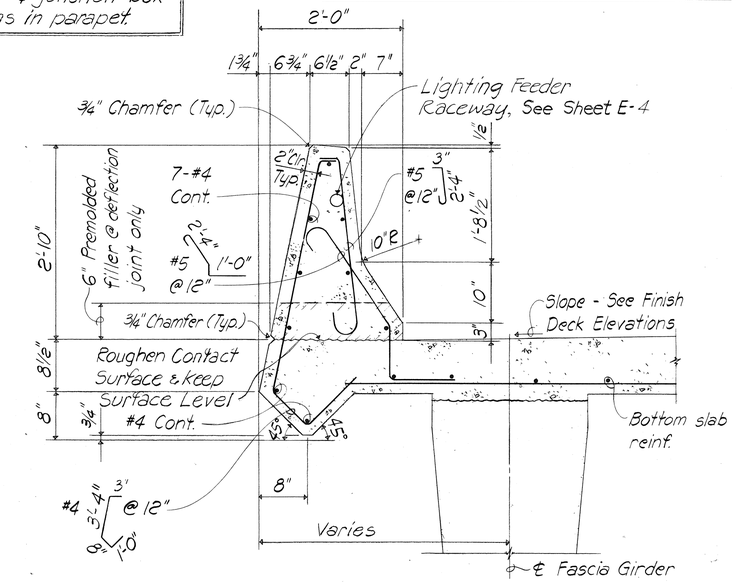
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	101	106

NOTE:
See Electrical Drawings for duct & junction box locations in parapet.

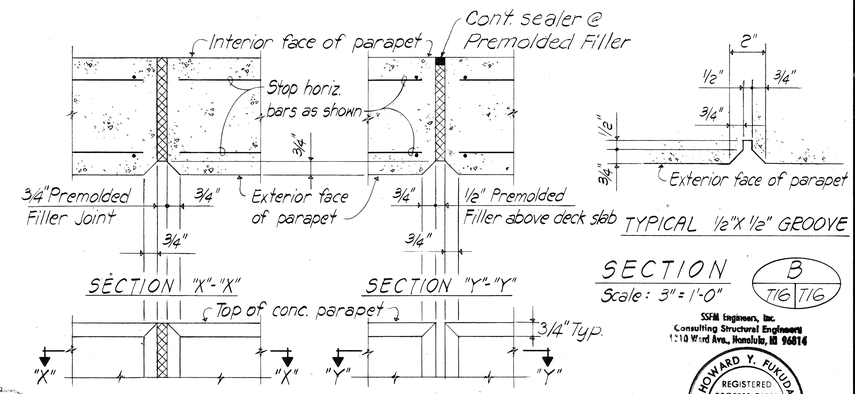


PARTIAL PLAN - EXTERIOR CONCRETE PARAPET
Scale: 1/2" = 1'-0"





TYPICAL EXTERIOR CONCRETE PARAPET SECTION
Scale: 1" = 1'-0"
A T16 T16



SECTION
Scale: 3" = 1'-0"
B T16 T16

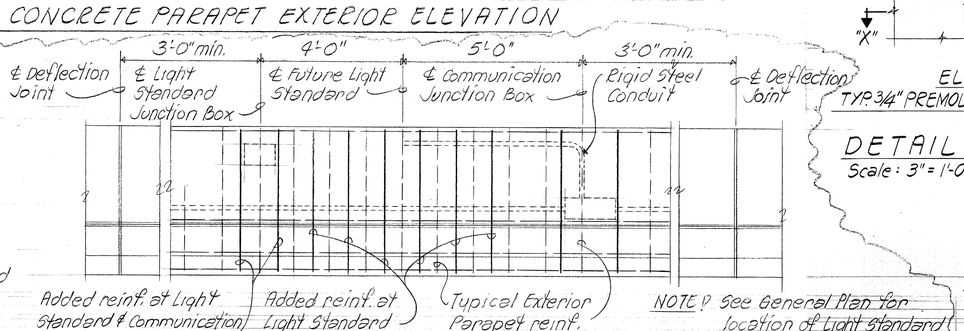
ELEVATION
TYP. 3/4" PREMOLDED FILLER JOINT

DETAIL
Scale: 3" = 1'-0"
1 T16 T16

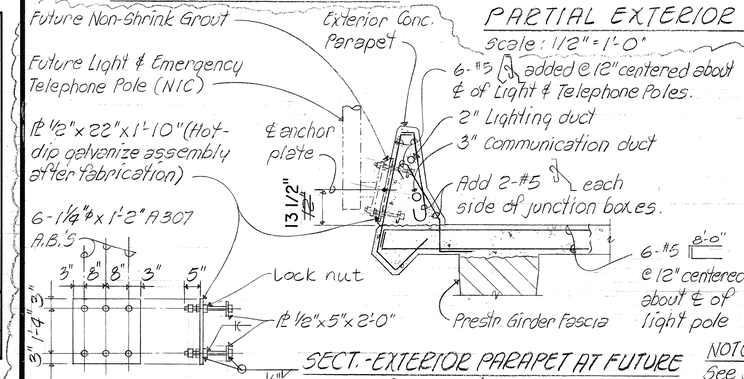
ELEVATION
TYP. 1/2" DEFLECTION JOINT

DETAIL
Scale: 3" = 1'-0"
2 T16 T16

PARTIAL EXTERIOR CONCRETE PARAPET EXTERIOR ELEVATION
Scale: 1/2" = 1'-0"



NOTE: See General Plan for location of Light Standard & Emergency Telephone



SECT.-EXTERIOR PARAPET AT FUTURE LIGHT STANDARD & EMERGENCY TELEPHONE
Scale: 1/2"=1'-0"

NOTE: See Section A this sheet for reinf & details not shown.

ELEVATION-EXTERIOR PARAPET AT FUTURE LIGHT STANDARD & JUNCTION BOXES
Scale: 1/2"=1'-0"

Date	Revision
7/90	Added details at light & emergency telephone pole

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EXTERIOR PARAPET DETAILS

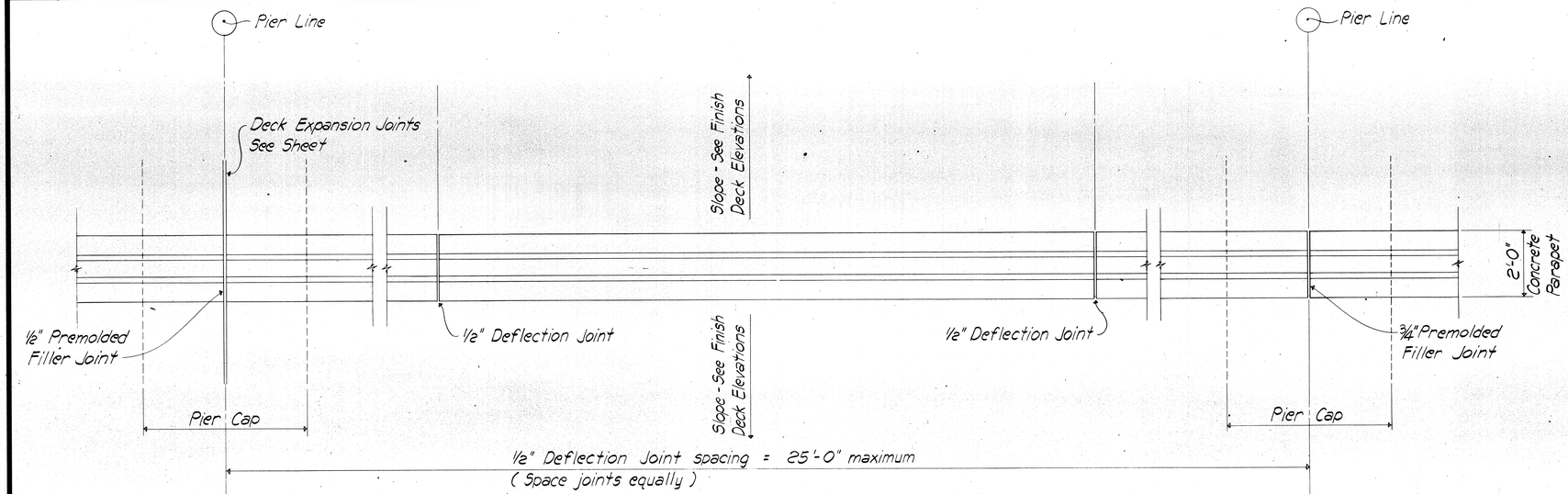
INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)
SCALE: AS NOTED DATE:

SHEET No. T16 OF 21 SHEETS

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | NOTE BOOK | No. | DATE

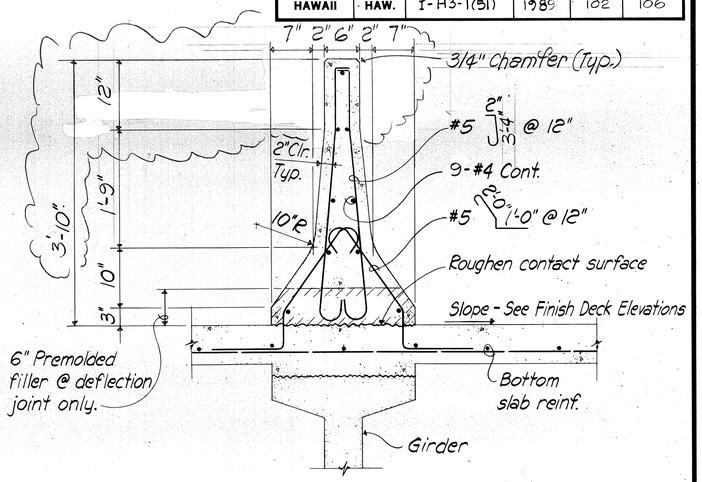
C.O. 101

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	102	106



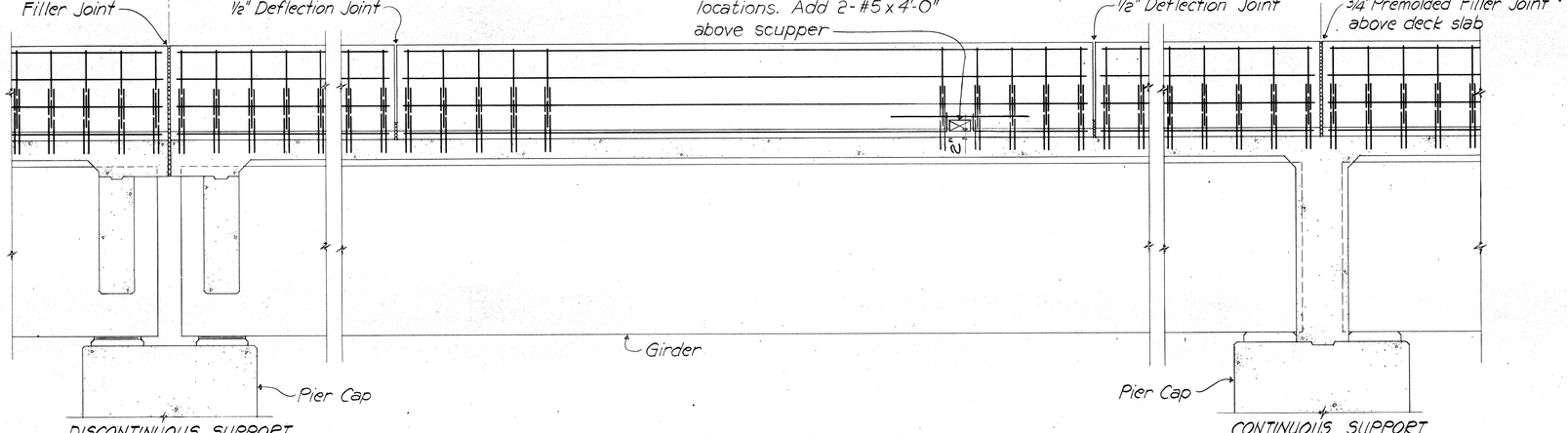
PARTIAL PLAN - INTERIOR CONCRETE PARAPET

Scale : 1/2"= 1'-0"



TYPICAL INTERIOR CONCRETE PARAPET SECTION

Scale : 1" = 1'-0"



PARTIAL ELEVATION - INTERIOR CONCRETE PARAPET

Scale : 1/2"= 1'-0"

REFERENCE DRAWINGS:

1. Premolded filler & deflection joint details ------- Sht. T16
2. Expansion joint detail ------- Sht. T18

DATE	REVISION
1/5/90	REVISED CONC. PARAPET SECTION

ORIGINAL PLAN

SURVEY PLOTTED BY _____ DATE
DRAWN BY _____ . . . . .
TRACED BY _____
DESIGNED BY _____
NOTE BOOK QUANTITIES BY _____
No. _____ CHECKED BY _____

SRM Engineers, Inc.
Consulting Structural Engineers
1218 Ward Ave., Honolulu, HI 96814

HOWARD Y. FUKUDA REGISTERED PROFESSIONAL ENGINEER No. 1343-S HAWAII U.S.A.

This work was prepared by me or under my supervision.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

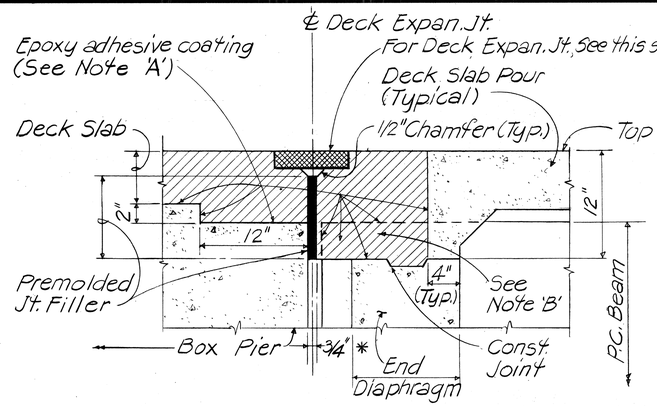
INTERIOR PARAPET DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)
SCALE: AS NOTED DATE:

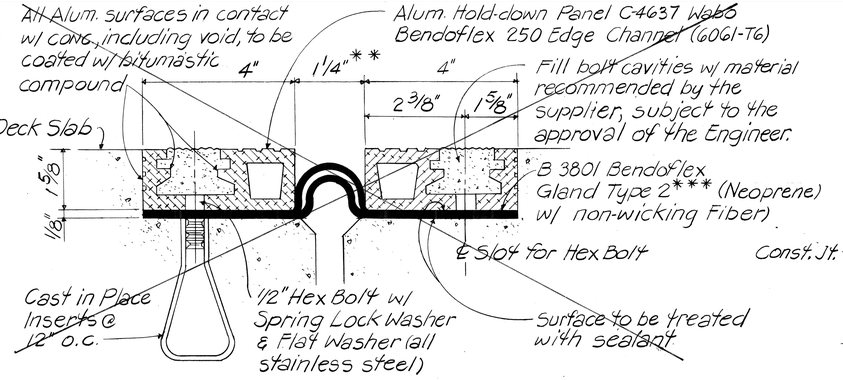
SHEET No. T17 OF 21 SHEETS

C.O. 102

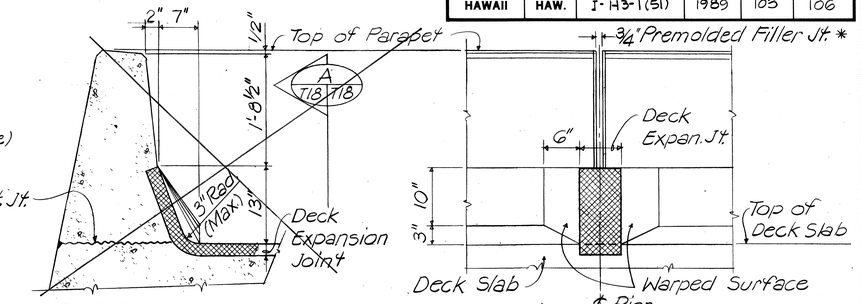
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	103	106



TYPICAL DECK SECTION AT BOX PIER
Not to Scale

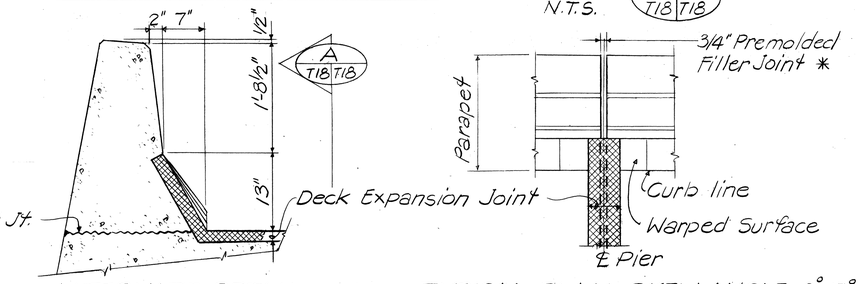


WABO BENDOFLEX 250
(Mfr.: Watson Bowman Assoc. Inc.)



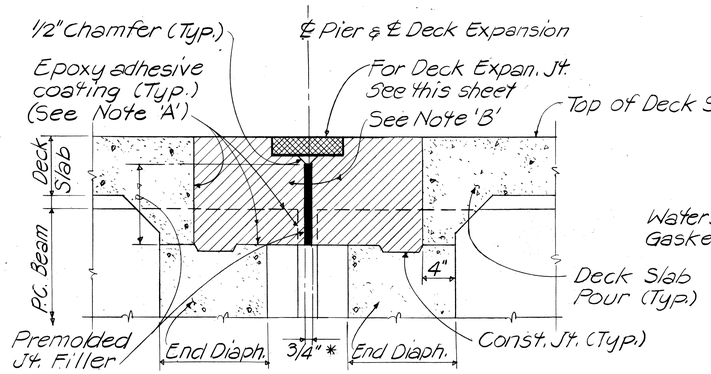
TYPICAL SECTION AT STD. PARAPET (SIM. @ MEDIAN)

VIEW A T18 T18
N.T.S.

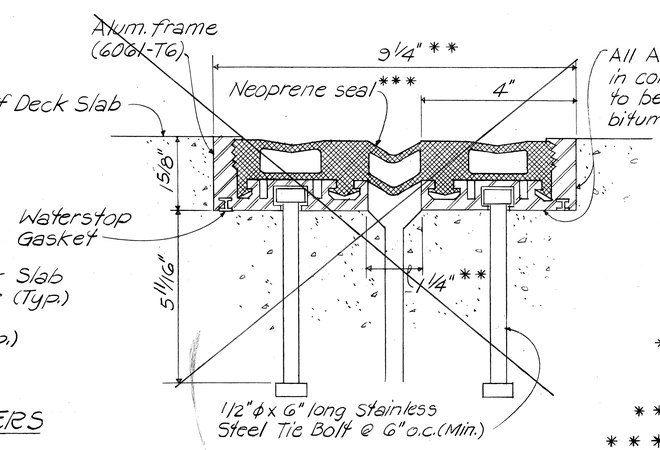


ALTERNATE DETAIL AT PARAPET
(Similar detail at interior parapet)

TYPICAL PLAN - SKEW ANGLE = 0°-15°
NOT TO SCALE



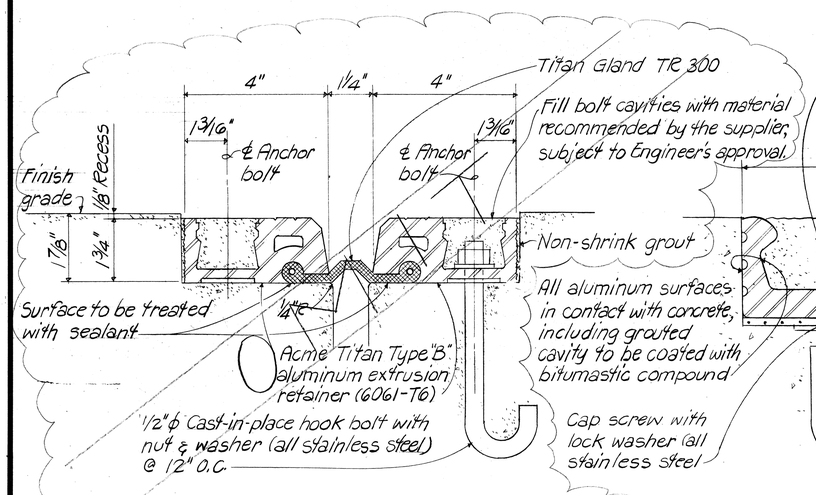
TYPICAL DECK SECTION AT TYPICAL PIERS
Not to Scale



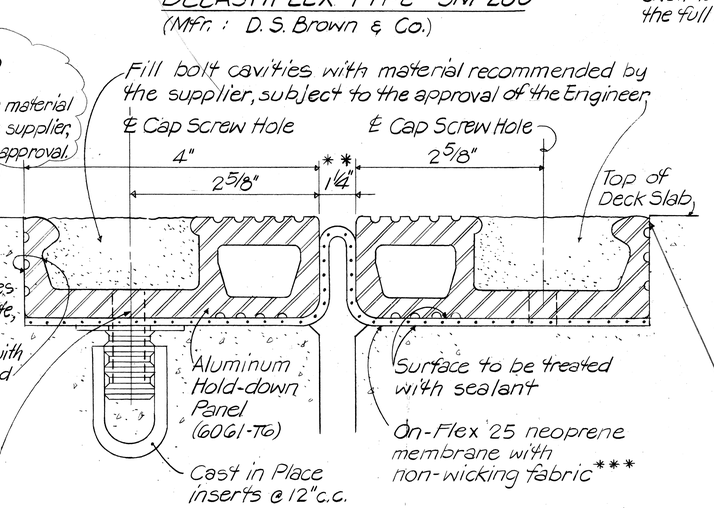
DELASTIFLEX TYPE SM 200
(Mfr.: D. S. Brown & Co.)

* Joint opening at time of installation of joint. Joint to be formed by premolded filler.
* * = Installation width @ 75°F
* * * = Seal Gland or membrane shall be continuous across the full width of the structure.

NOTES:
1. Four alternative Deck Expansion Joint Systems are shown. Contractor has the option of selecting any one of the systems. The contractor shall verify dimensions and submit detailed shop drawings of the selected joint to the Engineer for approval.
2. The Contractor also has the option of using an alternative Deck Expansion Joint System provided it complies with the requirements of the plans and specifications.



ACME TITAN TYPE "B" EXPANSION JOINT
Not to Scale



ON-FLEX 25
(Mfr.: Structural Accessories Inc.)

NOTE 'A'
Just prior to concreting of the hatched areas, coat the indicated surfaces with an epoxy adhesive. (See Special Provision, Sec. 705.14)

NOTE 'B'
Hatched areas shall be concreted after 14 days of deck slab pour. Anchor devices shall be located and held in their final position, as per Manufacturer's requirement, during the concreting of the hatched areas.

NOTE 'C'
The closure pour (hatched areas) for deck expansion joint installation is required for spans with Keehi Type VI & Type IVF beams

Adhesive Sealant in gap

SSFM Engineers, Inc.
Consulting Structural Engineers
1210 Ward Ave., Honolulu, HI 96814

HOWARD Y. FUKUDA
REGISTERED PROFESSIONAL ENGINEER
No. 1343-S
HAWAII U.S.A.

This work was prepared By me or under my supervision.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DECK EXPANSION JOINT DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)
SCALE: AS NOTED DATE:

SHEET NO. T18 OF 21 SHEETS

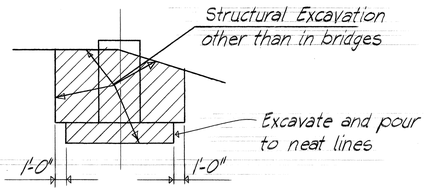
ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
NOTE BOOK
QUANTITIES BY
CHECKED BY
DATE
No.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	104	106

Foundation Schedule

FTG	Rectangle footing on earth: Size (W×T×L)	Rectangle footing on earth: Long Reinforments (Bottom)	Pedestal Vertical Reinforcements	ELEV. "A"	ELEV. "B"	P Post Spacing
L	5'-0"x2'-0"x14'-0"	#7 Bars @12"	8-#7 Bars	161.84	154.84	5'-2"
R	5'-0"x2'-0"x14'-0"	#7 Bars @12"	8-#7 Bars	162.64	155.00	5'-2"

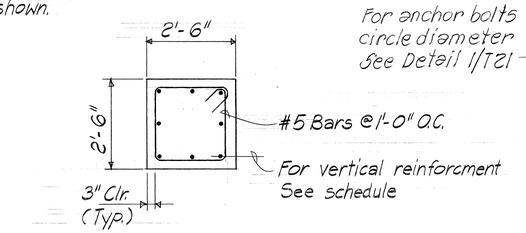
L and R refer to left and right footing when viewing signs as viewed by approaching traffic.



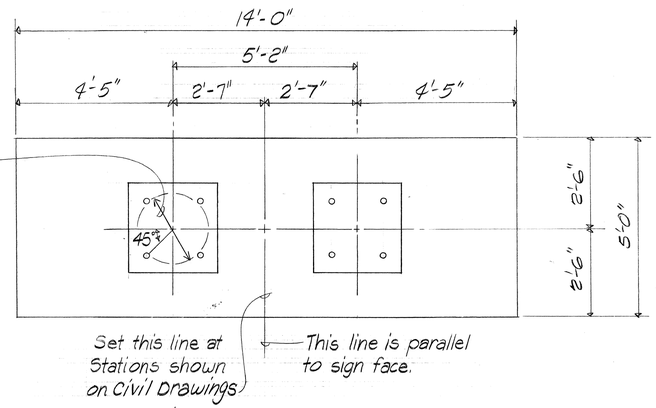
EXCAVATION PAYMENT LIMITS

Note:
Upper limit for payment of structural excavation shall be the lower of existing ground, finished ground, or subgrade of roadway.

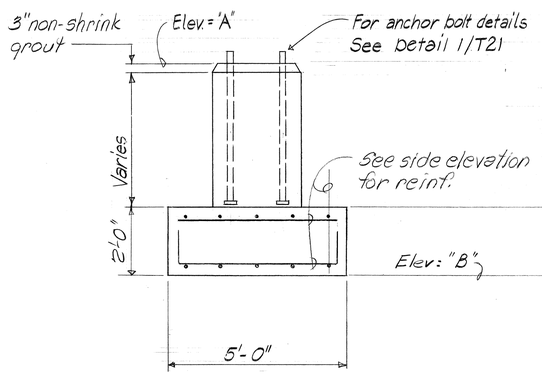
Conduits and anchor bolts not shown.



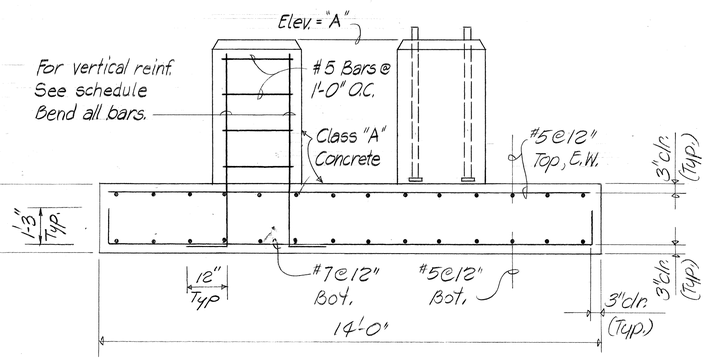
PEDESTAL PLAN
Scale: 1/2"=1'-0"



FOOTING PLAN
Scale: 1/2"=1'-0"



END ELEVATION
Scale: 1/2"=1'-0"



SIDE ELEVATION
Scale: 1/2"=1'-0"

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE
NOTE BOOK
No.
ORIGINAL PLAN

SSFM ENGINEERS INC.
501 Sumner St., #502
Honolulu, Hawaii 96817

HOWARD Y. FUKUDA
REGISTERED PROFESSIONAL ENGINEER
No. 1343-S
HAWAII, U.S.A.

Note: This Sign Structure was removed & replaced in a later H-3 contract.

This work was prepared by me or under my supervision.
Howard Y. Fukuda

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

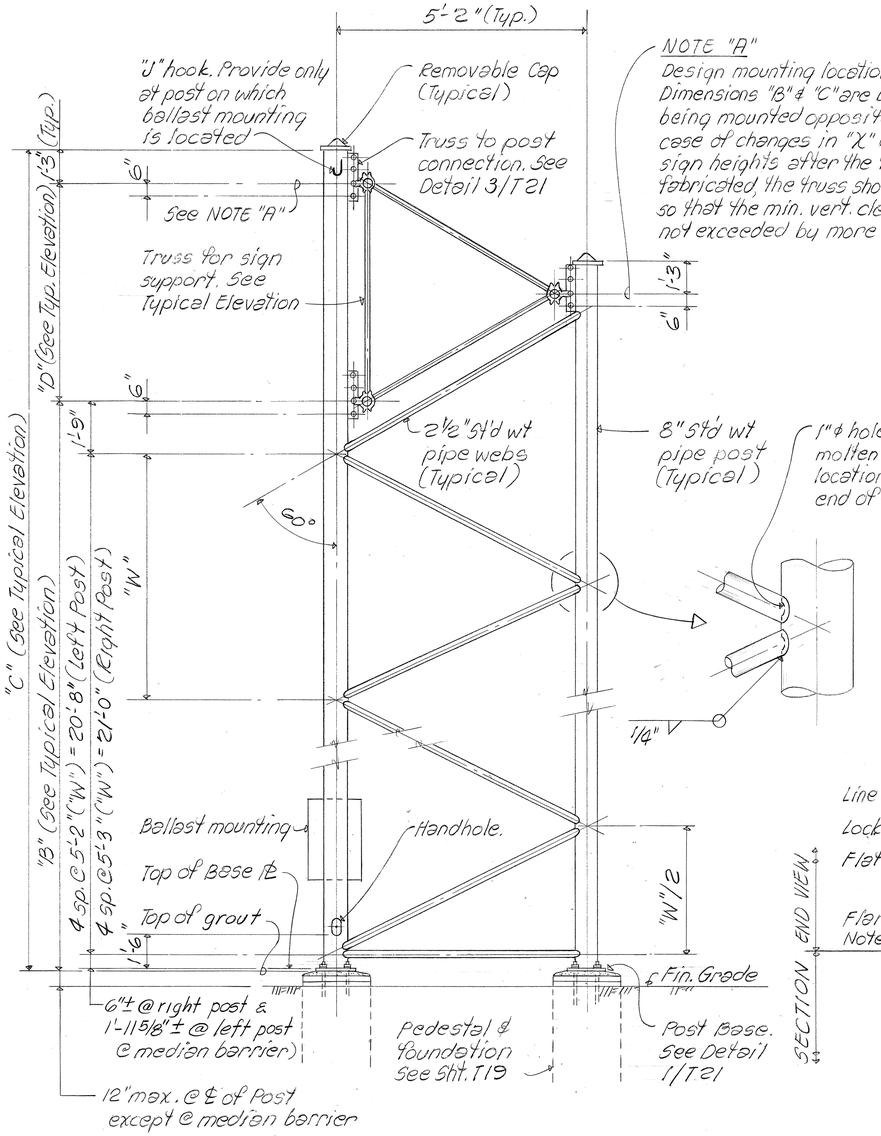
SIGN STRUCTURE FOUNDATION DETAIL

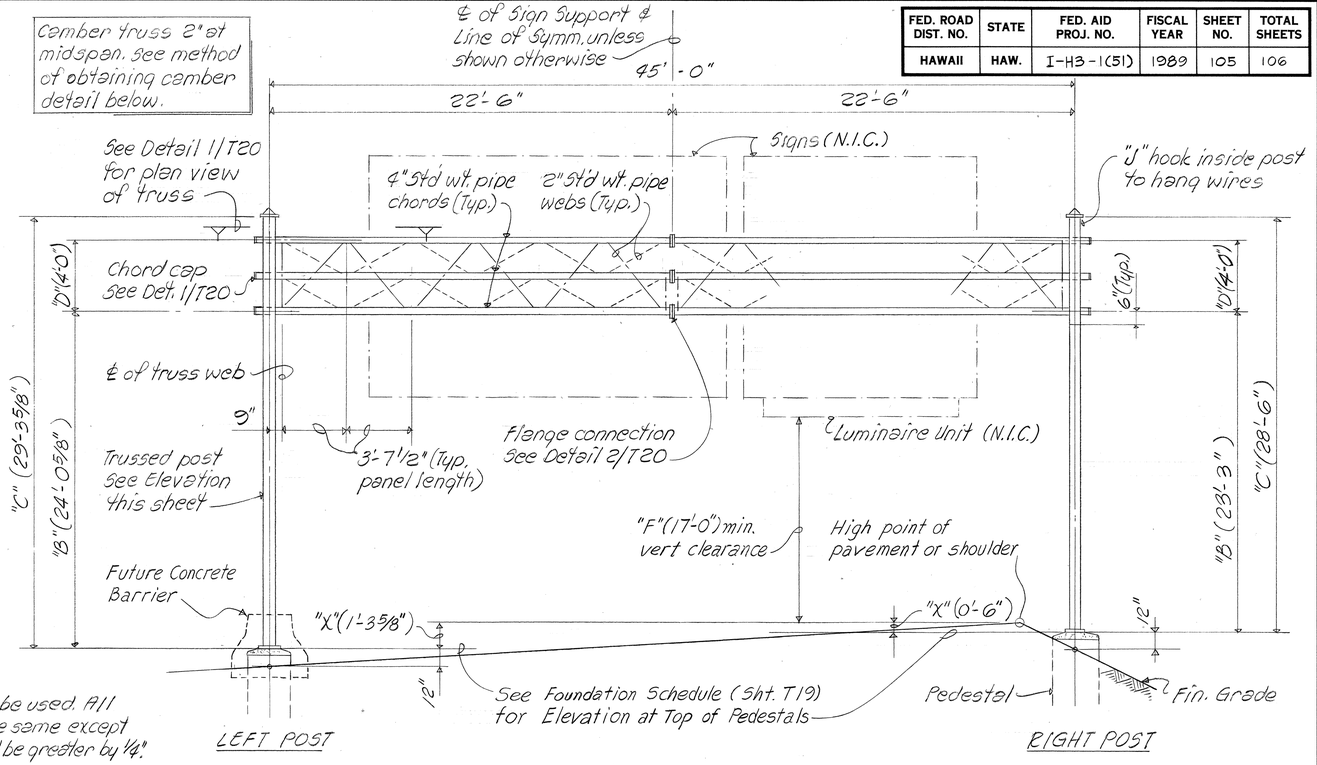
INTERSTATE ROUTE H-3
F.A.I PROJ. NO. I-H3-1(51)
SCALE: AS NOTED DATE:
SHEET NO. T19 OF 21 SHEETS

Date	Revision
11-7-90	Revised Footing Elevations

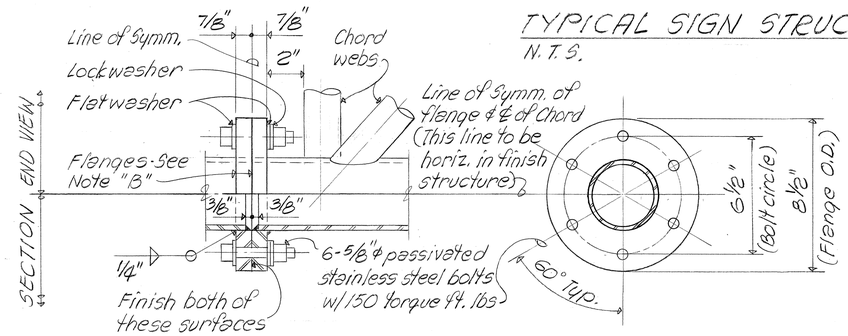
C.O. 104

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	105	106



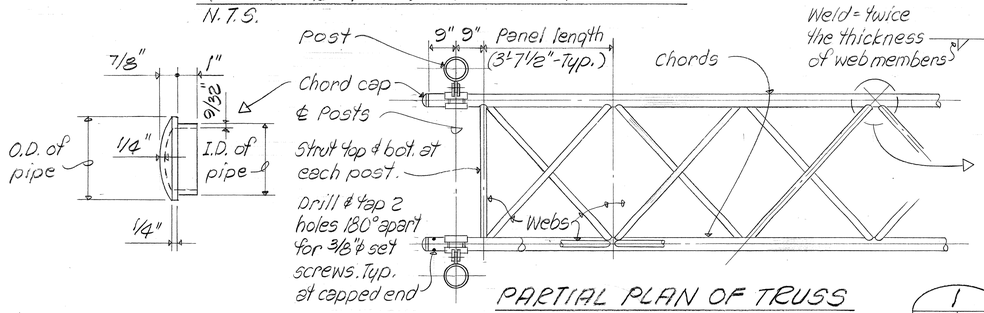


NOTE "B"
Cast flanges may be used. All dimensions will be same except "t" of flanges shall be greater by ¼".



TYPICAL SIGN STRUCTURE TRUSS ELEVATION
N.T.S.

TRUSSED POST END ELEVATION
N.T.S.



PARTIAL PLAN OF TRUSS
Scale: 1½"=1'-0"

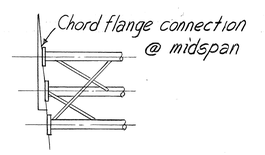
1 / T20 | T20

FLANGE CONNECTION DETAIL
Scale: 3"=1'-0"

2 / T20 | T20

NOTES:

1. The number & arrangement of panels in each section must be such that the web members in each face of the 4ri truss form continuous trussing in the structure from post to post.
2. Single & double posts, baseplates & post to plate connections are fabricated of galvanized steel.
3. Galvanized steel in contact with aluminum must be separated by "Fabco or Fabreeka Pads."
4. Stainless steel bolts shall conform to the Standard Specification for Alloy-Steel Bolting Materials for High Temperature Service, ASTM Designation A193, current edition, Type B6 (AISI Type 410 with a minimum yield of 85000 p.s.i.). Nuts shall conform to the Standard Specification for Carbon & Alloy Steel Nuts for High-Pressure & High Temperature Service, ASTM Designation A194, current edition, Type 6 (AISI Type 416). Flat washers & lock washers shall conform to the Standard Specification for Corrosion-Resisting Chromium-Nickel Steel Plate, Sheet & Strip, ASTM Designation A167, current edition, Type 304. After heat treatment all stainless steel hardware must be descaled & cleaned to conform to ASTM Designation A380-57, Descaling & Cleaning Stainless Steel Surfaces, & then passivated.
5. All bolts & washers except stainless steel bolts shall be galvanized.
6. See specs for painting.



METHOD OF OBTAINING CAMBER
(Washers having the same O.D. as flanges & with holes punched for bolts may be used.)

Note:
This Sign Structure was Removed & Replaced in a later H-3 contract.

SSFM ENGINEERS INC.
501 Sumner St., #502
Honolulu, Hawaii 96817

HOWARD Y. FUKUDA REGISTERED PROFESSIONAL ENGINEER No. 1343-S HAWAII, U.S.A.

This work was prepared by me or under my supervision.
Howard Y. Fukuda

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE TRUSS DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51)

SCALE: AS NOTED DATE:

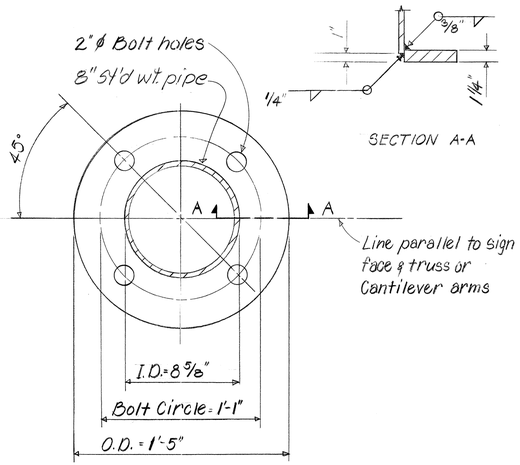
SHEET NO. T20 OF 21 SHEETS

DATE	REVISION
11/15/88	SIGNS & LUMINAIRE N.I.C.

ORIGINAL PLANS | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE | NOTE BOOK | No.

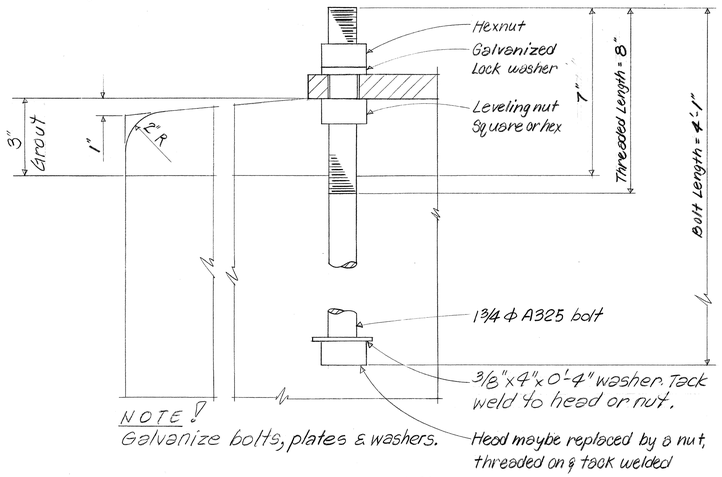
ADD. 105

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(51)	1989	106	106



PLAN- BASE PL DETAIL

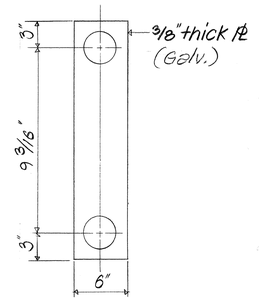
When used with pedestals on rectangular footings these anchor bolts may be shortened if necessary so that the lower end rests on the top of the rectangular footing. 3/8" thick anchor plates will be required, Refer to anchor plate detail.



NOTE!
Galvanize bolts, plates & washers.

ELEVATION- ANCHOR BOLT DETAIL

NOTE "A":
Galv. anchor PL to be used in lieu of washers when nominal bolt length exceeds height of pedestal plus 4".

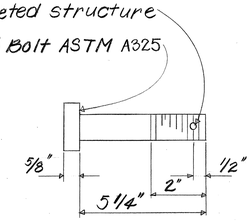


PLAN- ANCHOR PL DETAIL
SEE NOTE "A" ABOVE

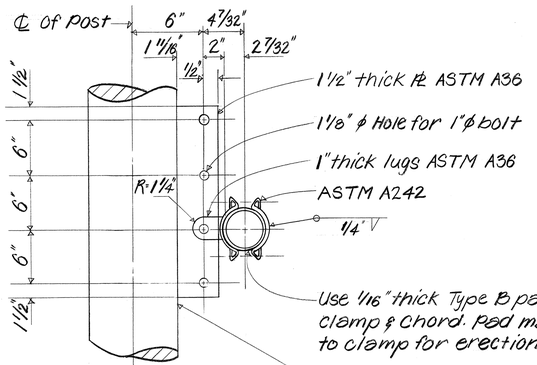
TRUSSED POST BASE DETAIL
N.T.S.

1
T-20 T-21

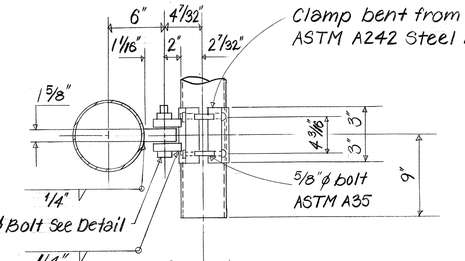
5/16" ϕ Hole for 1/4" Cotter Pin or U-Bolt. Hole to be vertical in completed structure



1"ϕ BOLT DETAIL



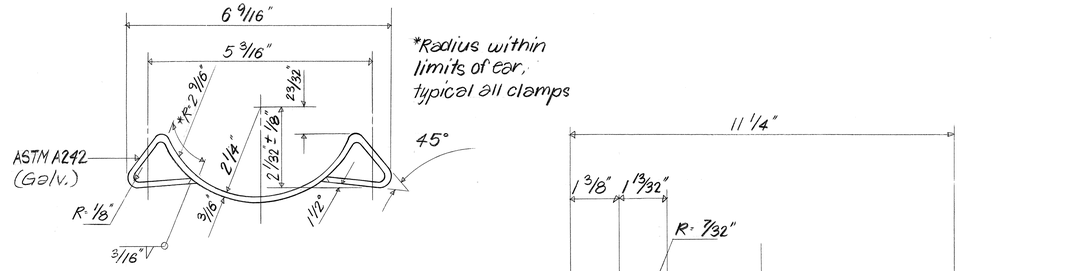
ELEVATION



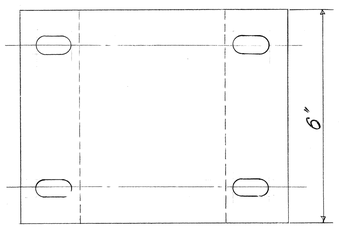
PLAN

TRUSS TO POST CONNECTION DETAIL
N.T.S.

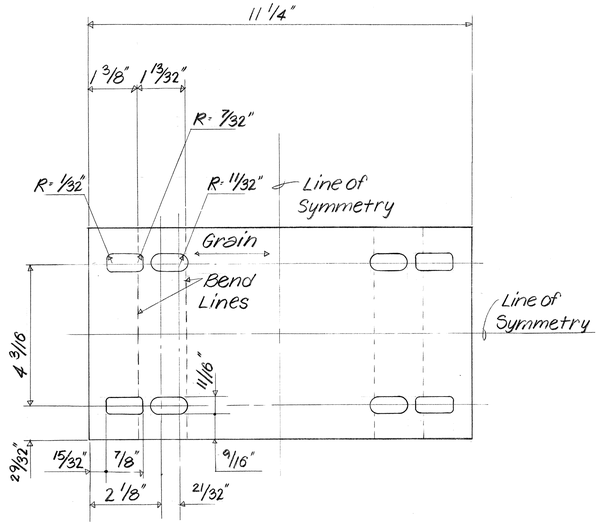
3
T-20 T-21



ELEVATION



PLAN



DEVELOPMENT

CLAMP DETAILS
N.T.S.

2
T-20 T-21

Note:
This Sign Structure was removed & Replaced in a later H3 Contract.

SSFM ENGINEERS INC.
501 Sumner St., #502
Honolulu, Hawaii 96817

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No. 1343-S
HAWAII, U.S.A.

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Howard Y. Fukuda

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGN STRUCTURE CONNECTION DETAILS

INTERSTATE ROUTE H-3
F.A.I. PROJ. NO. I-H3-1(51).

SCALE: AS NOTED DATE:

SHEET NO. T-21 OF 21 SHEETS

ORIGINAL PLAN
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
NOTE BOOK
QUANTITIES BY
CHECKED BY
DATE
No.